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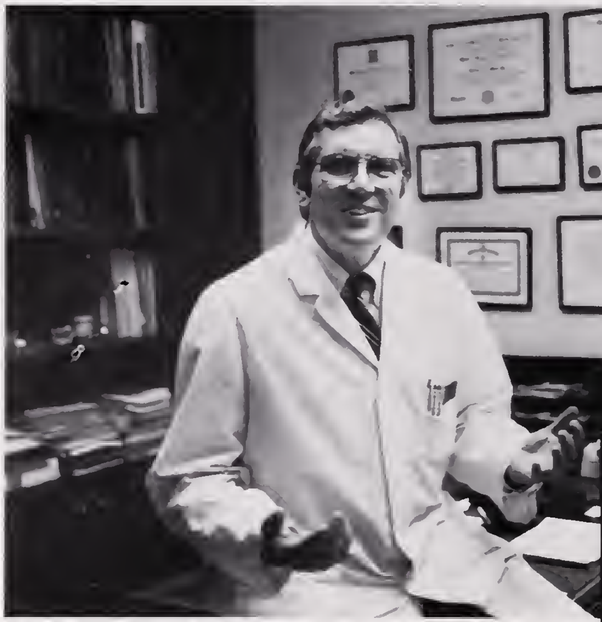

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Along the fence line

Faris E. Keeling, M.D., took the cover photograph between Moorhead and Barnesville, Minnesota, using a Fujica ST-801 with a 50 mm lens and Ektachrome film.

After practicing as a family physician for five years in Barnesville, Dr. Keeling is now in the University of North Dakota's residency program in psychiatry.

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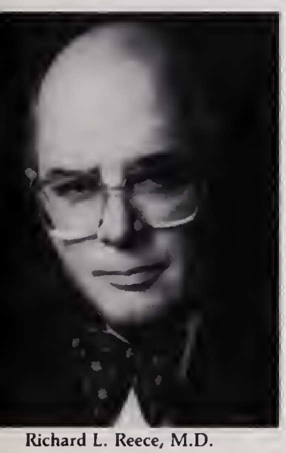
editor's notebook

The Rural Health Drama: A Guide to this Issue

> "What happens in a stage performance is, finally, the sum of three elements: the text, the individual and collective qualities of the actors, and the ability of the director to adapt these personal qualities to his own conception of the drama."
>
> *John Houseman, Final Dress,*
> New York: Simon & Schuster, 1983


Richard L. Reece, M.D.

These last three years, I have written 21 editorials on the corporate transformation of medicine in Minnesota. Why so many editorials on one subject? Because this "transformation" hits me as a multifaceted and as yet endless drama. I feel compelled to keep writing until I see how it ends. This drama has many authors, but certainly Paul Ellwood is first among them. But the actors — reformers, patients, doctors, payers, and purchasers — do not always agree with the playwright and his helpers' interpretations. So individually and collectively the actors keep improvising. And the director, who goes by the name of Public Opinion, can't make up its mind whether it wants its drama the Old Fashioned or New Fangled way, or both.

We are, I believe, now in the third and final act of this saga, which preoccupies people throughout this land.

The First Act

The first act took place in the minds of those bent on reform. To achieve this reform, the playwright and his associates decided to change the culture of medicine to fit the culture of the marketplace. To do this, they instructed actors to speak of "consumers" rather than "patients," of "providers" rather than "physicians and hospitals," of "products" rather than "diseases," and of "competition" rather than the "practice of medicine." Indeed, the text didn't even mention "Medicine" at all, referring instead to "health care delivery systems" or, better yet, to the "health care industry."

The Second Act

The scene for the second act was set in the cities, for in the cities were the capital, the management skills, the corporations, and the consumers. In the cities you could gather that critical mass of employers wanting to try something new, that concentration of people vulnerable to marketing messages, and that excess of physicians who preferred the certainties of staying in the cities and working for corporations to the uncertainties of country living and practicing. The action in the second scene, which took place over a ten-year period, went pretty much as predicted.

The Last Act

Now the time has come for the last act. We are still early in the first scene of that act, so I cannot tell you how it will end. People in the country have difficulty coming to terms with large impersonal organizations and institutions. In small towns, citizens who own farms, who run small businesses, and who live there have a different set of values. It is said by some that these values are disappearing, but I'm not so sure.

Rural Characters

Why not? Well for one thing, country folk tend to be more personal about their relationships with local doctors and local hospitals. For good reasons, too. Small towns want to keep their doctor and their access to immediate care. The hospital is often the biggest employer in town. Anyway, the hospital gives you a secure feeling — it's the safety net for critical situations. Besides, in farm towns, you depend on a sense of togetherness. In the main, rural people are poorer, managers are fewer, hospitals are smaller and less well-equipped, physicians are fewer and more general in their skills, and patients are older and more scattered. Given these factors, personal relationships count.

The UpTown-DownCountry Syndrome

Because of these differences and because of the devastating double-whammy of manufacturing job loss in the iron industry and depression in the farm economy, Minnesota has a two-tiered medical care system. An UpTown-DownCountry Syndrome is emerging, with health resources being concentrated in the cities and being sucked out of the countryside.

Opinions in This Issue

How should the people and physicians of Minnesota react to this syndrome? This issue of *Minnesota Medicine* contains these well-informed opinions:

- **Senator Durenberger** says we ought to recognize the differences and ought to reward the rural sector more;
- **Dr. James Knapp,** president of the Minnesota Medical Association, says we ought to "keep the faith" by working cooperatively together as physicians and with leaders of society;
- **Dr. John Verby,** director of the Rural Physician Associate Program at the University of Minnesota Medical School, says we ought to train physicians to function more effectively in a rural environment by placing them in that environment early;
- **Dr. Raymond Christensen,** of the Northern Lakes Health Care Consortium, says we ought to think of the rural health situation not as a crisis but an opportunity for partnerships to improve service;
- **Dr. Deane Manolis,** medical director of Behavioral Health Services at the Metropolitan Medical Center, says we ought to go out of our way as a profession to mobilize communities to prop up those who are mentally depressed because they are economically depressed;
- **Dr. Jack Greene,** a practitioner from northern Minnesota, says city doctors ought to recognize it's tougher for country doctors than for their city colleagues to compete economically and technologically for the patient care dollar;
- **Dr. Barbara Yawn,** of Worthington, does double-duty by showing vividly in an original article, written with her husband, that the teen-age copulation explosion has reached rural Minnesota, and then, by arguing in an essay that rural physicians are isolated from the business methods they need to know to survive;
- **Dr. David Larson,** of Northfield, says rural doctors ought to be more innovative and then describes how Northfield Hospital and its doctors have organized a trauma squad to cope with the multiple trauma patients so often seen in rural settings;
- **Nurse Mary Angstman** and two physicians, Dr. Kurt Angstman and Dr. Robert Olson, say in their article, which compares cesarean section rates in Canby, Minnesota, to the rest of the nation, that surgical practices in this Minnesota small town are more conservative than those of this largely metropolitan nation;
- **Dr. David Hilfiker,** now of Washington, DC, but formerly of Grand Marais, Minnesota, and author of the best seller, *Healing the Wounds*, a book about physician burnout in Grand Marais, tells a poignant vignette of how domestic tragedy affects a young doctor;
- **The MMA Task Force on Rural Health,** reporting the results of a survey of rural physicians, tells us what it's like in the trenches as seen through the eyes of physicians who are out there practicing in rural Minnesota and offers its recommendations on means to ease the strain.

You may not agree with these actors, but to me, their words form the narrative of high drama.

Richard L Reece MD

president's letter

Keeping the Faith: A Minnesota Tradition

In June 1986, in this space, I summarized concerns of my own and others about the potential crisis in health care in rural Minnesota. The June letter described the two-tiered Minnesota economy and observations made at the six area meetings held by the Minnesota Coalition on Health.

The coalition has since completed its report, and the MMA's Task Force on Rural Health has conducted its own study of the problem. The task force's recommendations are included in this issue of *Minnesota Medicine*.

James F. Knapp, M.D.

The most revealing information comes from a survey the task force conducted this fall of our rural physician membership. The general impression reflected in the survey results is that rural access to health care is currently quite good. However, mental health and, to a lesser extent, long-term care surfaced as problem areas. Also, most respondents expect that access will worsen unless the economy improves or programs to moderate the impact of the failing economy are developed. The findings of the independent Minnesota Coalition on Health are in general agreement with this analysis.

Two task force conclusions are particularly noteworthy: First, every member of the task force was impressed by the spirit of resolve and cooperation in the rural area. The dedication of health care professionals, other community leaders, and rural residents has kept the threat of a crisis in check. Despite the overwhelming odds, a discouraging outlook, and the less than satisfying sensitivity shown by government policy-makers, rural Minnesota is surviving. It might not be thriving as it has at other times in history, but the resolve is there to see this latest downturn through to better times. We're "keeping the faith!"

The task force also discovered how directly economics affects access to health care. It found that although Minnesotans consider care of their health important, they also have a great deal of pride, and many are delaying seeking needed medical care as long as possible because they can't afford it. This is particularly unfortunate for infants and children, who can benefit most from preventive vaccines and other medical care. While physicians traditionally are willing to see any patient who needs treatment, whether the patient can pay or not, the growing percentage of uncollectible bills and persons on Medical Assistance (where the payment is usually not sufficient even to cover overhead), paints a bleak picture for physicians. This trend will eventually affect patients—even those who *do* overcome their pride to ask for the medical care they need.

As the task force report shows, there are many current and potential problems affecting the delivery of high quality health care in rural Minnesota. But in typical Minnesota fashion, we are recognizing these problems, analyzing them, suggesting solutions—and then acting on them.

I invite every Minnesotan concerned with access to health care to study the task force report and recommendations. Please consider them in relation to your own practice, your specialty, and your urban or rural environment. Then, I invite your criticisms, additions, corrections, *and* your participation in the implementation process. I also encourage you to talk about the report with your state legislators.

Despite the problems, I believe it is also important to remind Minnesotans of some vital strengths in our health care system:

- Overall, our state is known for its high standard of medical care. I don't think any of us is willing to compromise this value;
- We also have more physicians, with better training, than at any time in history; and
- We have an excellent network of local hospitals, modern in construction and equipment and eager to serve the rural citizenry.

Both physicians and hospitals are committed to continued high quality health care in rural Minnesota. With this spirit in mind, I believe that the task force recommendations are a steppingstone to maintaining and even improving health care for the entire state.

In conclusion, I would like to publicly thank the members of the task force. Their diligent attention, packed into a short time period, will serve the whole medical profession and, to a great extent, Minnesota as a whole.

I look forward to the months ahead as we, in true Minnesota tradition, find ways to counter the very real problems in rural Minnesota. I truly believe we can do it.

James F. Knapp MD

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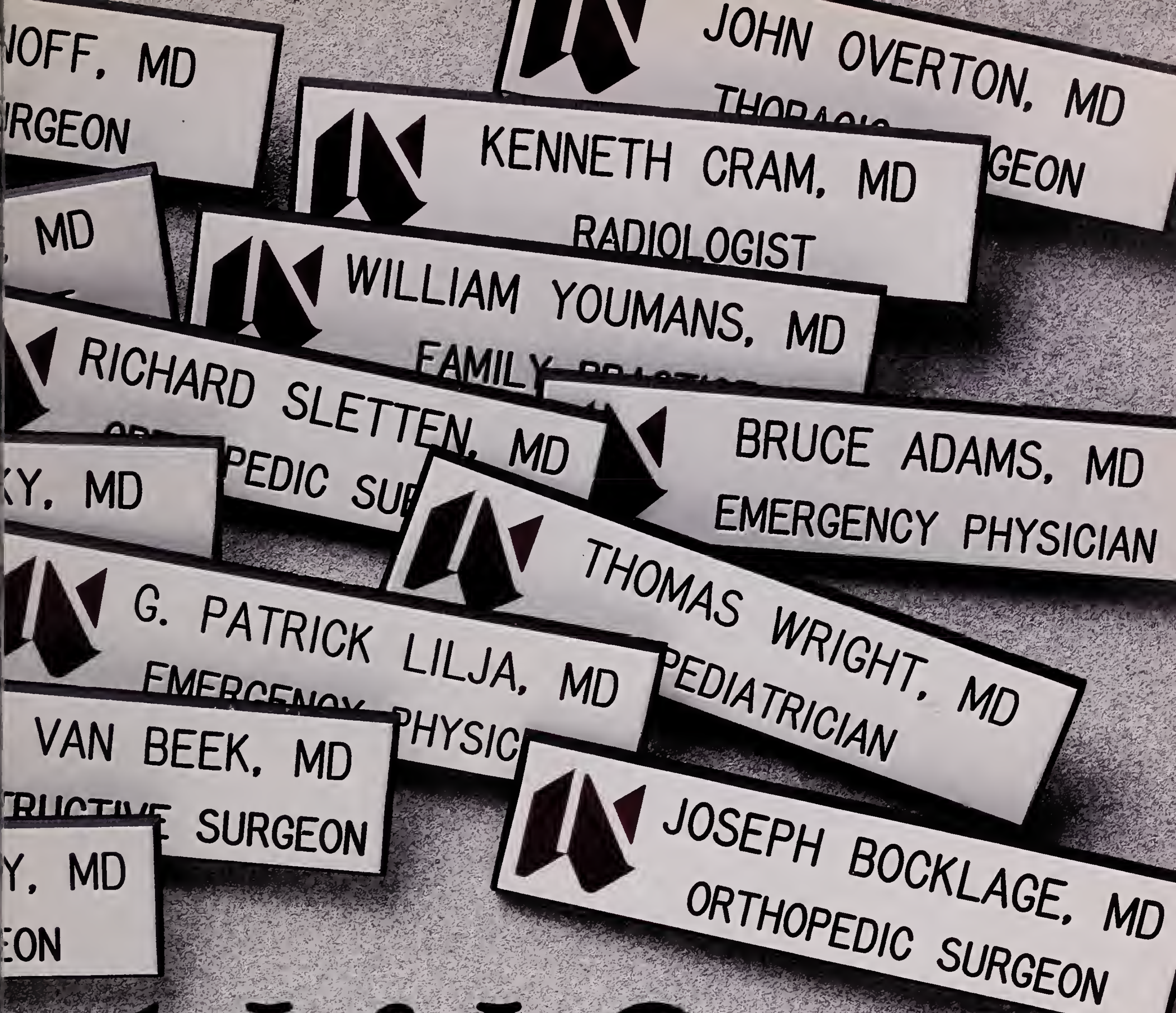

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perspectives

Practicing the business of medicine

Barbara Yawn, M.D.

Dr. Yawn has a private practice in Family Practice in Worthington, Minnesota, and works at a satellite clinic in Lakefield. She also hosts the MMA's radio show, HealthBeat Update.

Is there a crisis in medicine in rural Minnesota? Maybe not, but some days I feel like there is.

I don't see as many patients each day as I did six years ago. My partners tell me that is because I have another woman to share the patients with now and maybe I've learned how to control my time instead of it controlling me. Perhaps.

The hospital asks for more help in writing grants to make funds available for new equipment and to start new programs that five years ago could have come from the hospital's profits. We spend a lot more hours in meetings debating the value of new staff regulations recommended by the hospital's insurance carrier. Several suggestions would remove privileges for patient management and procedures I've done for ten years just because my specialty is family practice.

I've spent up to 45 minutes telling a third-party payer why I must admit a 42-week gestation multiparous woman to the hospital for a second attempt at medical induction. The nurse reviewer wants to know when she will be ready for discharge and I don't even know when she may deliver.

I find it most irritating to have to pick my words so carefully when hospitalizing a Medicare patient. Almost every week we receive new Medicare rules. Because most Medicare admission approvals will be retrospective it will be six to nine months before the hospital knows which bills may be paid. Patients don't need to worry about Medicare *and* their illnesses so we, the physicians, worry about the health of our patients and the fiscal health of our hospitals. I feel as if I have to become the policing force for the new insurance carriers. Maybe the crisis is in my attitude.

> *"I do know that many of us practice, not in medical or social isolation, but in business isolation."*

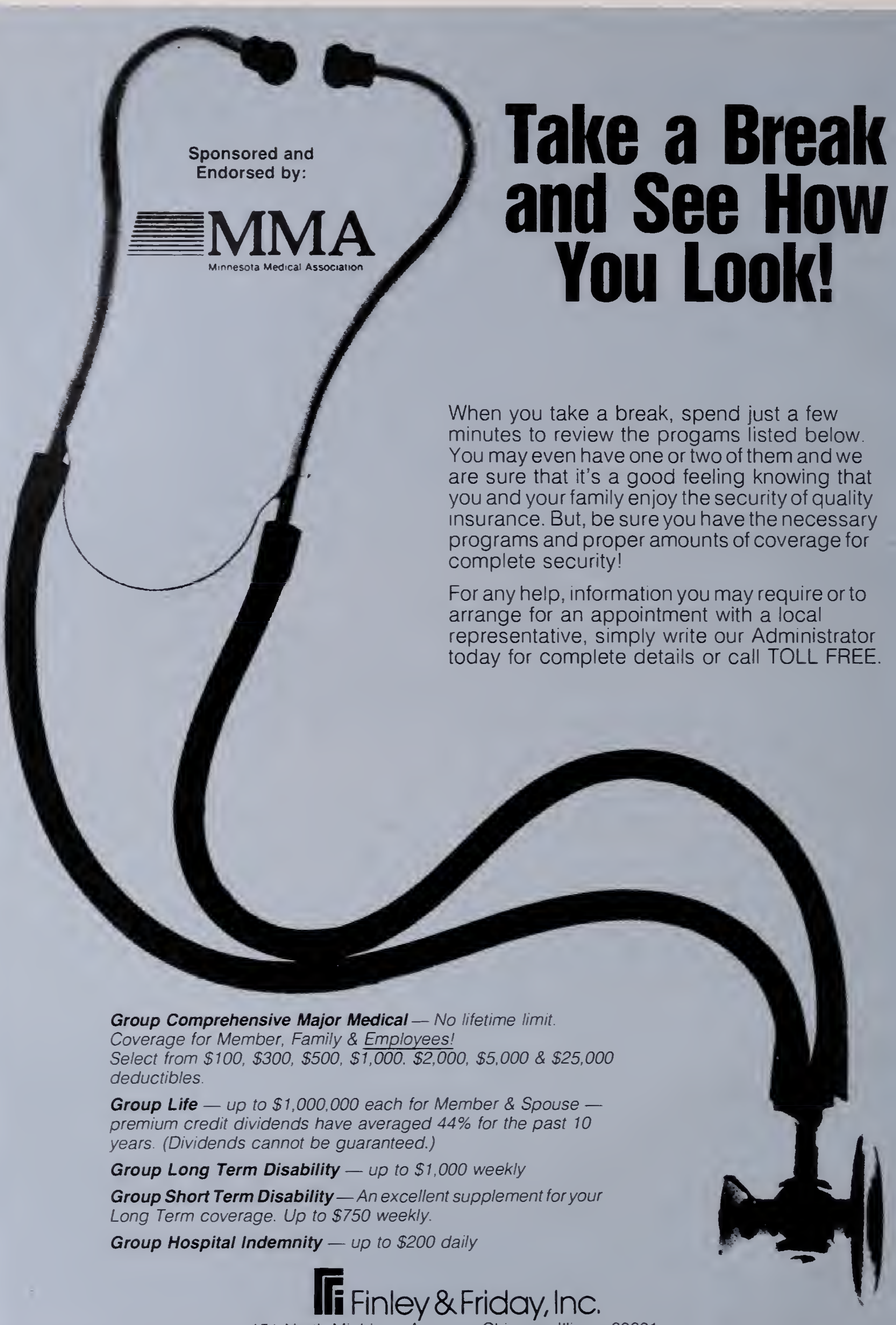
What does rural health look like from a patient's perspective? While I may see a few less people each day, they are now more ill. The number of diagnoses coded per patient has increased and the number of lab tests needed per patient has doubled. A smaller percentage of the women sent reminders for regular Pap smears respond promptly. Children come later in their illnesses. (Maybe this isn't due to concern over health care costs but to my educational efforts with parents about fevers and when to come in.)

Last week I responded to a hospital CODE 4. A woman was standing over her husband in the parking lot crying. After helping to stabilize the man it was my job to try to get a history from the wife. She told of her husband's progressive downhill course, of turning him in bed every two hours and forcing him to take liquids. This morning he had begun to cough and so she knew she could at last take him to the hospital because "Medicare pays for pneumonia."

Another frustrating aspect of practicing medicine today is the need to become more and more business oriented. I stayed out of academic Family Practice after realizing the amount of time our program director spent writing budgets and protocols. Now I find if we do not learn the ins and outs of insurance reimbursements and new tax laws and make correct guesses regarding the future directions of medicine, we may end up with a greatly diminished medical clinic and hospital. No longer can our first question be "Does our population need a new care unit or treatment program?" but rather, "Will it be successful in helping keep our hospital afloat?"

In our area, where farmers are facing bankruptcy, it is not popular to mention that physician salaries in our clinic have decreased over the last five years, and I know my internist and Ob-Gyn partners find it difficult to understand why their urban colleagues are worth 25% to 40% more to the Medicare population.

Fears about hospitals closing have done strange things to medical advertising. Since I am seldom in Minneapolis, I could ignore the billboards and radio and television ads that do not offer the prospective patient any useful medical information but only innuendos of who "cares more." Our local paper has

Sponsored and
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carried stories of grand "new" concepts of birthing from neighboring hospitals — things we have done for years — and I find myself feeling the need to respond.

Does all this add up to a crisis? I don't know. But I do know that many of us practice, not in medical or social isolation, but in business isolation. It is difficult to find the expert clinic managers, the public relations staff, and the political allies we need to help us sift through and affect what may happen to rural health care in the next five, ten, or fifty years.

We all practice today under circumstances most of us believed five years ago we could never have tolerated or accepted. Can we continue to be molded by non-medical forces, or will it be useful to strengthen, support, and guide our organized political and public voice to assure the continuation of quality rural medical care for our patients?

Transitions in rural medicine

Jack B. Greene, M.D.

Dr. Greene, who has practiced family medicine in Chisholm, Minnesota, for seven years, is a product of the University of Minnesota Medical School and received his residency training at St. John's Hospital in St. Paul.

During the final days of my residency training in St. Paul, I was excited about the prospects of beginning a new practice with a multispecialty clinic on Minnesota's Iron Range. The economy seemed to be thriving and the demand for medical services, particularly in outstate Minnesota, was tremendous. Medicine was enjoying favored status, with third-party payers accepting the charges for medical services, hospitalization, and laboratory studies almost without question. Malpractice was only something one insured against, HMOs were in their infancy, and my idea of political activity was maintaining membership in state, local, and national medical organizations.

My first months in medical practice proved to be every bit as rewarding as I thought they might be; every month brought an increase in patient population and the rewards of a burgeoning practice. As the sole family practitioner in a satellite clinic, I was soon looking for a partner to share the increasing load. Finding another family practitioner who was competent, aggressive, and compatible took longer than I expected but soon he started his practice and the future looked rosy.

Several years have passed now and the changes in the medical scene are both startling and depressing. Northern Minnesota is suffering the same economic depression affecting other rural areas throughout the state and, indeed, our country. Because our area is heavily dependent upon the iron mining industry, we have been hard hit by a depressed market for American steel products. Growing unemployment among our citizens has substantially reduced their ability to pay for health care services and has disillusioned many of our young people, resulting in an exodus of nearly 10% of the Iron Range population in the past few years. Malpractice has become a frightening

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specter, and competition, especially from health maintenance organizations, has become very keen. The Medicare system has instituted DRGs with prospective payments and has mandated a fee freeze followed by only a modest fee increase. Medicaid payments have allowed many of these unemployed persons to receive necessary medical services, but the reimbursement levels have been barely adequate to cover their treatment. Added to this is the steadily rising cost of equipment, materials, and staff salaries, meaning one must possess great ingenuity to maintain an adequate income.

The rural family practitioner faces the additional problem of trying to maintain currency in a rapidly expanding world of medical knowledge. It is difficult at best to compete with an urban center that daily takes out half- or full-page newspaper ads and offers the latest medical technology and ready access to a multitude of specialists and subspecialists. Many of our patients with adequate financial resources succumb to the attractiveness of these medical centers, and we rural physicians are left with the patients who have minimal or no financial resources.

Our medical institutions are aging and so are many of my colleagues. Attracting new physicians to our area is a formidable task. One can't help but wonder what the future holds for rural medicine and the rural medical practitioner. Frustration recently prompted one of my colleagues to comment, "Medical practice just isn't fun any more." Certainly individuals who contemplate rural practice should be those who can live with uncertainty, constant call and availability, and the ability to cope with the vast and changing data base of medicine.

For rural medicine to survive, we must improve cooperation and communication between rural physicians and our colleagues at the urban medical centers. Government must be involved in assuring adequate funding for outstate medicine. All physicians must be politically astute and active, and work to ensure continuation of top-quality medical services. Most of all, we must work diligently to provide access to the highest quality medical care for all of our citizens, rich and poor, rural and urban.

Diffusing the crisis in rural mental health care

Deane C. Manolis, M.D.

Dr. Deane Manolis is medical director of Behavioral Health Services, Metropolitan Medical Center, Minneapolis, Minnesota, which has established a Rural Crisis Services program. He is also co-medical Director, Mental Health Program, Douglas County Hospital, Alexandria, Minnesota.

In the past several years, Minnesota mental health professionals have become increasingly aware of the impact the farm crisis has had on the mental health of Minnesota's rural population. In many respects, this *selective* economic depression is more devastating to individuals than the "Great Depression" of the 1930s, because urban populations and the country as a whole remain relatively prosperous. Availability of mental health services, always limited in rural settings, is increasingly critical in what is likely becoming a "chronic" crisis.

Solid statistics on the magnitude of the problem are lacking, but much anecdotal data has been published in the national, local, and medical press. Late in 1985, Metropolitan Medical Center (Minneapolis) staff informally surveyed community mental health centers statewide as well as staff of the University of Minnesota Agriculture Extension services and the Minnesota Department of Agriculture. All agreed that there was an increased incidence of depression and family crisis in the financially stressed farm population. Also, in late 1985, a study of Minnesota teen-agers was completed in which rural teen-agers reported a high incidence of depressive symptomatology. Successful suicides are highly publicized, but mental health professionals working in rural areas also are aware of an increase in alcohol-related problems, family violence, and even behavioral problems in young children.

Rural physicians have long been aware of a paucity of mental health services available to their patients. There are several excellent rural mental health programs in the state, but many community mental health programs suffer poor access due to waiting lists, minimal crisis services, and inconsistent consultative relationships with physicians. Few psychiatrists practice outside the urban areas of Minneapolis/St. Paul, Rochester, and Duluth, and few hospitals have inpatient psychiatric programs. A number of counties have virtually no funds available for mental health services.

In this context, the Governor's Mental Health Commission, appointed in August 1985, issued a report in February 1986, with recommendations that could have a significant and positive impact on rural residents. The House of Delegates of the Minnesota Medical Association endorsed this report by resolution in May 1986. An assistant commissioner for mental health in the Department of Human Services was appointed in August 1986. There will be considerable pressure in 1987 for legislative action to carry out the recommendations of the Governor's Commission.

Even though rural mental health professionals are busier with farm crisis related problems, they recognize that they are seeing only a limited number of the individuals in need of services. This is due to the characteristic reluctance of farm and rural populations to use mental health services that are available to them. Rural physicians are much less likely to hear about problems than are clergy, and, in fact, many people talk to no one and "suffer in silence." This characteristic likely stems from traditional values in which stoicism, independence, and pride in remaining self-sufficient become instilled in one's personality organization. There then is a specific vulnerability to depression based on much guilt and shame, particularly when an individual is faced with losing a farm that may have been in his or her family for generations. It becomes extremely difficult to admit to an emotional problem or seek outside help for it, when one is too ashamed to go to church or even to town.

With this in mind, we have seen that the rural individual in crisis has responded best to support from informal "grassroots" community programs, which often need to go *to* the individual rather than wait for him to come in for an appointment. Peer advocates, clergy and church laity, county extension agents, and others may be involved in these programs. Informal networks of these groups exist around the state, with hotlines available as resources for individuals and the groups themselves. It has been found that an *educational* approach to mental health issues — in the form of seminars, support groups, or even lectures — can be extremely helpful and a guilt-reducing mechanism for stress-ridden individuals. The mediation program initiated earlier this year following new Minnesota legislation has been quite helpful in defusing some crisis situations and allowing farm families to work through their losses with some support. Vocational assessment and retraining programs also have been helpful, particularly with younger farmers.

> *"Out of necessity, most rural primary care physicians periodically have had to function as psychiatrists."*

Out of necessity, most rural primary care physicians periodically have had to function as psychiatrists. With the current farm crisis, the rural physician must remain even more active and sensitive in responding to the mental health needs of his or her patients. The physician has three major roles:

1. Case finding — looking for depression or intense anxiety in patients of all ages; sometimes even young children can reflect a crisis within a family.
2. Treatment — being aware of local resources, prescribing psychopharmacological treatment when indicated, using referral resources for severe cases.
3. Advocacy — supporting the development of local grassroots programs, becoming familiar with and supporting statewide mental health agendas such as the Governor's Commission on Mental Health.

Resources

The resources and hotlines listed below might be of help to the rural physician:

Farm Crisis Hotline 1-800-652-9747
Attorney General's Office, state of Minnesota. General information, referrals for financial counseling, a clearing-house for information.

Project Support 1-800-843-4334
University of Minnesota Agriculture Extension Services. A program that functions through the county extension agents.

Farm Advocates Program
1-800-652-9747
Minnesota Department of Agriculture. Includes a network of farm advocates that provide peer support. A brochure, "Help For Farm Families," published by the Minnesota Department of Agriculture, is an excellent resource.

Minnesota Family Farm Law Project
1-800-233-4534
Legal assistance for farmers.

Rural Crisis Hotline 1-612-347-4302 (Collect)
Rural Crisis Services, Metropolitan Medical Center. Mental Health resource and referral information statewide.

Acknowledgment

Information in this report was gathered by Jo Rohady, R.N., coordinator, Rural Crisis Services, Metropolitan Medical Center, Minneapolis, Minnesota.

More PERSPECTIVES, next page.

Evoking the gifts

David Hilfiker, M.D.

Dr. Hilfiker is a staff physician for Columbia Road Health Services, and Christ House, Washington, DC. He participated in the University of Minnesota's Rural Physician Associate Program as part of his medical training (see related feature, page 31).

It had been a minor accident. The young mother driving with her infant home from church that Sunday morning had skidded off the road into the ditch, lacerating her knee and shaking herself up a bit. But the baby had not been belted in and had been thrown against the window. The baby had not responded at the scene of the accident, so the rescue squad brought the mother and her child the 20 miles to our rural hospital. The mother was taken to an auxiliary examination room while the third-year medical student — in the middle of his Rural Physician Associate Program year — examined the baby in the emergency room. The child was dead.

The student went into the smaller examination room to attend to the mother. She didn't ask about her son, and the student didn't volunteer anything; he wanted to examine her first, to be sure she was all right before breaking the news. Besides, he didn't really know what to say, anyway. He did all that he had been taught that year — a general going over, a closer examination of the knee, an X-ray, sutures to the laceration — but how was he ever going to tell her?

This was not a "learning experience." This was medicine learned as it would be for the rest of his career — from the pain and joy, the confusion and clarity of patients' real lives. Sure, the preceptor had taught him how to suture, how to diagnose appendicitis, how to treat a sore throat, how to deliver a baby —the easy stuff; but he was also teaching him how to be present in his patients' pain, how to be vulnerable to their suffering. They were to be together an entire year, and he was learning a lot of the nuts and bolts of medicine. But what he would take with him for the rest of his life was the possibility that a physician could heal not only with science but could also enter into the stuff of his patients' lives and heal from there.

There is no way to *teach* how compassion is juggled with objectivity, how deeper communication fits in among the business, how personal needs are balanced with the demands of patients. If one is to be a physician, of course, these must be discovered, yet there can be no textbook, no lectures spelling it out. Rather, the art of medicine must be *evoked* individually as the special gift of the unique doctor-to-be. Under the circumstances of traditional medical education, the student must discover these gifts on his or her own. But the Rural Physician Associate Program provides an environment in which that deeper wisdom can be evoked by one who has gone that way before. It is, of course, an enormous gamble, banking an entire year on that one relationship or perhaps on a set of relationships with a small group of preceptors. Yet great things are rarely won without risks.

The medical student walked out into the hallway. His preceptor was there. They looked at each other wordlessly. How many times had the older one been through this before? Tears glistened in the corners of his eyes. He put his hand on the younger one's shoulder, and they went into the room together.

While the preceptor stood aside, the student moved over to the woman lying on the examining table. He looked stiff, uncomfortable; it was hard to look her in the eye, but he did, speaking softly. He told her. Her eyes clouded. The student had nothing to say. There was nothing left for him to fix. The room was filled with pain, grief, guilt, suffering. What would he do now? Softly the preceptor was at his side, nudging the young man toward the grieving woman. They took her in their arms and held her. All three wept together.

special report

Averting a Crisis in Rural Health Care

A Summary Report by the MMA Task Force on Rural Health

A pending crisis threatens access to health care throughout rural Minnesota. All levels of government, third-party payers, health care providers, and rural residents must join forces to avert this crisis in rural health care.

These conclusions were reached by the Minnesota Medical Association's Task Force on Rural Health, which was created in August 1986 to determine the extent and severity of health care delivery problems in rural Minnesota.

Following an indepth study of the issue and a survey of MMA rural physician members, the task force determined that many of the problems are not unique to the rural population and that in many areas, access remains quite good. However, the economic situation in rural Minnesota has created an environment ripe for a major crisis, particularly in the northeastern region of the state. Already in rural Minnesota, a crisis exists in access to certain mental health services, and a substantial number of patients are delaying needed medical treatment, neglecting preventive care, and lacking basic health insurance—all trends that could result in a sharp decline in the health of rural citizens.

Following is a summary of the rural physician survey results and the task force recommendations for easing or alleviating some of the problems facing rural Minnesota.

Survey Results

The MMA surveyed its rural physician members this fall regarding their perceptions of rural health care delivery (Appendix). A 23% response rate was achieved from a total of 1677 physicians.

Access: Seventeen percent of the physicians surveyed believe there is a crisis in access to health care. Perhaps even more significant, 31% of these physicians have observed a decline in the use of preventive care such as well-baby care, and 37% noted a growing number of patients are delaying needed medical treatment.

Ninety percent of the respondents described emergency care, obstetrical services, and primary care as readily available, but more than half identified mental health services as *less* than readily available. Access to home health care and long-term care was judged as only fair but overall was rated higher than access to mental health services (Figure 1).

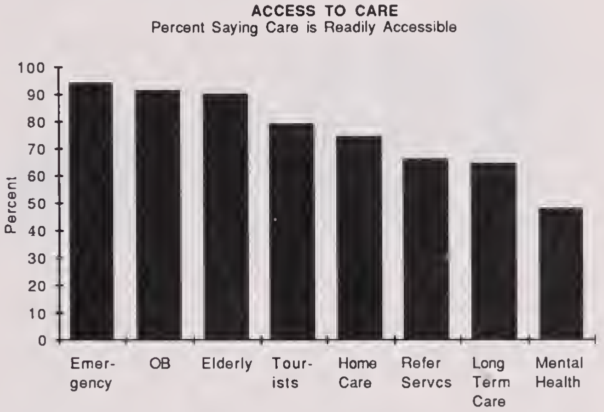

FIGURE 1—Percent of responding physicians saying access to health care is readily accessible.

When asked to anticipate changes that would take place in rural health care over the next three years, 22% of physicians predicted a decrease in the use of preventive care and 42% anticipated little change. Sixty-two percent said they expect no change in access to specialized care, 24% expect improvement, and only 12% fear a worsening. Forty-one percent expect that more patients will delay needed treatment in the future, 48% predict little change, and just 8% anticipate improvement.

Of their personal situation, 8% of surveyed physicians said that it is not at all likely that they will continue practicing in their area beyond the next year or two; 13% indicated that it is just somewhat likely and 73% that it is very likely that they will continue practicing in their area.

About 5% of those surveyed said they believe their hospital is in danger of closing and 6% report their hospital is facing merger, which could dramatically affect access to medical services in those local areas. Fourteen percent indicated that their hospital may need local tax support to survive.

Payment: The number of uncollectible bills absorbed by health care providers is increasing, the number of patients covered by Medical Assistance and GAMC is

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also higher now than in the past, and physicians expect both to continue to climb over the next three years.

The current Medicare payment differentials between urban and rural areas drew strong criticism from the surveyed physicians; 76% indicated that public policy in this area is misdirected. This was the highest negative rating among all public policies tested. A close second was the Diagnostic Related Group (DRG) reimbursement system, for which 65% expressed disapproval (Figure 2).

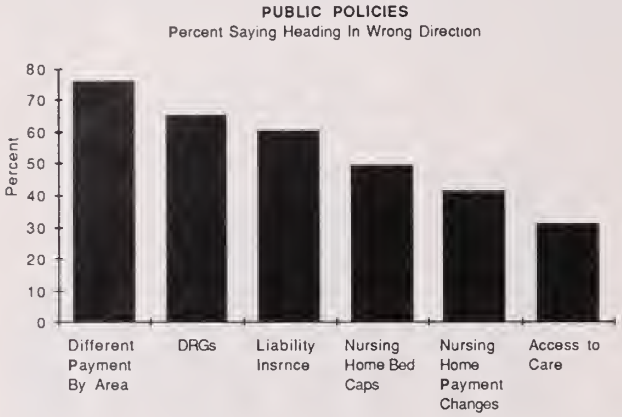

FIGURE 2—Percent of responding physicians saying public policies are misdirected.

Payment mechanisms such as Medical Assistance and Medicare were tested to see whether they were viewed as helping to make things better or if they were part of the problem. Medicare received the most negative rating, with 74% responding that the program was part of the problem. Medical Assistance and GAMC were second with a 63% negative rating. Insurance companies and BCBSM were given a negative rating by 40%. Sixty percent saw them as either making things better or some of both (Figure 3).

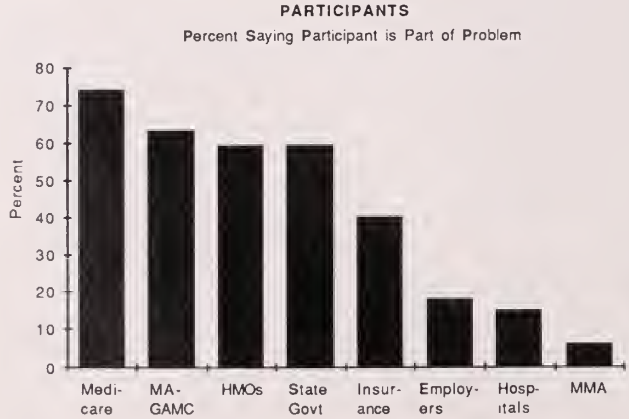

FIGURE 3—Percent of responding physicians saying participant is part of the problem.

Sixty-eight percent of responding physicians stated they have seen an increase in the percentage of Medical Assistance patients they have treated over the last three years—25% describing it as a large increase. This change was most dramatic in the Northeast region of the state, where 73% noted an increase in the use of Medical Assistance, and 40% described it as a large increase.

Actual caseload data supplied by the physicians also document a sharp rise in MA patients: Three years ago, 26% of physicians carried an MA patient caseload of 15% or more. Today, 52% of physicians see that many MA patients, and 71% said they expect to see even more in the future.

The financial impact of the changing rural economy is strongly reflected by the fact that nearly three-fourths of physicians reported an increase in their percentage of uncollectible bills, which understandably surfaced as an issue of great concern. Today, 30% of physicians report uncollectible bills of 15% or greater in their practices. Almost half anticipate uncollectible bills of 15% or more three years from now, and 75% predict the situation will continue to worsen.

Finances & Competition: A majority (64%) of the physicians indicated that they have not changed their referral patterns because of competition. Another 24% reported that they are referring more patients to other specialists, and 8% reported that they are providing more care themselves. Forty-three percent have experienced an income decline, and a majority expect further declines.

Of the 81% of responding physicians now practicing in a group setting, 52% are part of multispecialty groups and 29% concentrate on one specialty. Nineteen percent remain solo practitioners. These practice patterns appear fairly stable, with 87% reporting that they have not changed their style of practice during the past three years. Of the 13% whose practices have changed, 5% have moved from group practice to solo practice and 8% have moved from a solo to a group arrangement.

Some of those working in group practices reported that they are moving toward affiliation with larger clinics. Twelve percent have already merged with larger clinics, 1% report having been bought out, and 4% have a working association with a larger clinic. Twenty-two percent indicated that they have considered affiliation, while 58% said they have not considered setting up any such arrangement. A strong divergence from this pattern emerged in the Northwest and West Central regions, where 43% reported that their clinics have already merged with larger clinics, and 17% said they have not considered affiliation.

HMOs are a growing reality in rural Minnesota, and are viewed with concern. When asked to judge their contribution to the health care delivery system, 59% of physicians said they see HMOs as part of the problem, while 10% believe they are helping to make things better. Thirty-one percent responded that some of both is the case.

Notably, 71% of the respondents plan additional physician recruitment, except in the northeastern portion of the state, where just 50% plan to recruit new physicians. Alternatively, 17% reported having laid off employees during the last three years. Twelve percent of respondents said they had laid off clerical and administrative staff, and 11% cited layoffs of nurses and physician assistants. Six percent described layoffs of lab or other clinical employees, and 2% said they'd laid off medical staff.

Rural Economics: The impact of rural economic problems was most evident in the respondents' projections for 1989. The majority said they expect their Medical Assistance and uncollectible billings caseload to increase, for more patients to lack insurance coverage, and for their own income to drop. These negative expectations were not totally consistent with the respondents' reported plans for expansion. One explanation may be that competition is motivating the expansion. Another explanation may be that physicians expect the rural economic woes to ease further in the future than 1989.

The rural economic situation is also clearly reflected in the answers to the question, "Over the past three years have you seen an increase in the number of patients lacking basic health insurance?" Of the physicians surveyed, 46% responded yes, 39% answered no, and 15% were uncertain. Significant regional differences were seen in the answers to this question, with over 60% answering yes in the Northeast, Northwest, and West Central regions.

Twenty-eight percent of physicians reported an increase in the number of patients requiring mental health services, which may or may not be related to changes in the rural economy. While 69% reported no change in the health of their patients, 19% described an overall worsening, and 12% noted improvement. Looking to the future, 26% said they expect a greater demand for mental health services, and 25% expressed concern about an overall decline in their patients' health.

The greater concern for the future is, once again, the issue of health insurance. Sixty-one percent anticipate a growing number of patients lacking basic health insurance. Nearly three-fourths of physicians in northeastern Minnesota fear this situation will worsen.

Preadmission certification requirements, state and federal reimbursement policies, and increasing liability premiums were also cited as serious concerns of the rural physician.

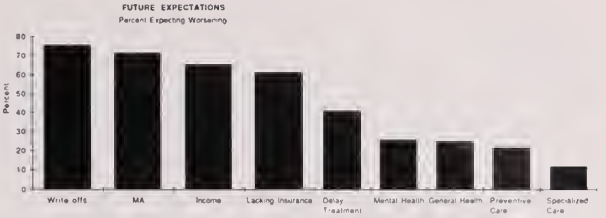

FIGURE 4—Percent of responding physicians expecting these situations to worsen over the next three years.

Recommendations

Without a lot of cooperation by a lot of people very soon, the health care delivery system in rural Minnesota will begin to decline, primarily because of access problems. The Minnesota Medical Association's Task Force on Rural Health submits the following recommendations in hopes of drawing those people together in an effort to avert a crisis in rural health care.

1. The MMA should work to alert federal, state, and county government, other third-party payers, health care providers, and rural residents to the potential crisis in rural health care and cooperate with all parties involved to prevent such a crisis.
2. A statewide coordinating office (and phone number) should be set up by state government to assist in making mental health referrals and identifying areas that do not have adequate mental health services, especially in crisis intervention. A system should include home health care services and could be modeled after the metropolitan area's "First Call for Help."
3. The MMA, in cooperation with primary care medical specialty societies, should develop crisis intervention continuing medical education courses in mental health for primary care physicians.
4. The MMA should work with the state government to establish a list of psychiatrists who are willing to offer phone consultation regarding mental health patients.
5. The MMA's Emergency Medical Services Committee, in cooperation with other relevant parties such as the Emergency Medical Services System, should develop guidelines for local and regional emergency services systems. This could be done in cooperation with a broader state-initiated study to determine where specific access problems exist in rural communities.
6. Minnesota must maintain support for ambulance services so that most state residents are within a reasonable distance of a Basic Life Support vehicle. This must be done after a statewide emergency services plan has been re-developed, based on the current economic environment. The MMA should cooperate

in this effort through its Emergency Medical Services Committee.

7. The Minnesota Hospital Association, the Minnesota Medical Association, and the Minnesota Department of Health should jointly conduct a study of small, rural hospitals of 50 beds or less to define specific problems and the basic viability of these institutions.

8. The MMA should ask the legislature to explore the possibility of creating a one-time federal/state buyout of selected small hospitals for debt resolution if an agreement can be reached to convert the facilities to other needed services such as nursing home beds, emergency medical services, or outpatient services. The MMA also should join the Minnesota Hospital Association in a study of the negative effects of duplication of services and ways to increase cooperation among smaller hospitals.

9. The state legislature should investigate a higher level of mental health coverage from third-party payers. The MMA should work to inform legislators that, in some cases the minimum level of required mental health coverage may be inadequate. However, additional regulation may be a further drag on the economy and should be be approached cautiously.

10. The Minnesota Department of Health, in cooperation with the MMA and other interested parties, should create a commission to study the sometimes conflicting roles of public health and private sector medical services. Duplication and competition should be eliminated or at least minimized. The commission should make recommendations on cooperative efforts and set guidelines that specifically address the needs of a rural rather than urban community.

11. The MMA should pursue legal, administrative, and political strategies like the following to end Medicare reimbursement inequities:

- MMA members should pay a voluntary special assessment to be used to attack this problem;
- State and federal office holders and policy-makers should be alerted to the extreme frustration rural physicians feel over their patients' Medicare reimbursement disparities;
- The MMA should consider a public information campaign to further publicize this problem;
- The MMA should further develop its ties to the active senior organizations (Minnesota Senior Federation and American Association of Retired Persons) and ask for their assistance in this effort;

12. The MMA should monitor the current national debate on medical reimbursement, particularly that concerned with a relative value scale for physicians (i.e., cognitive vs. procedural).

13. The MMA's Medical Practice and Planning Council should be asked to participate in the development of guidelines for identifying persons unable to pay for basic health care who don't qualify for government assistance; rural physicians can then continue to voluntarily provide free care on a case-by-case basis. The MMA should also support a concept similar to the American Medical Association's proposal for providing care to the uninsured.

14. The MMA should support and provide input into legislative efforts to require standards for home health care providers and assist the state in establishing a statewide referral system for the growing number of public and private home care services.

15. The MMA should encourage the legislature to establish a more simplified system for qualifying for government support programs and to reduce paper work. A toll-free number should be established for first-time applicants and to allow applicants to quickly check on eligibility in a "non-threatening" way.

16. The state should begin studying ways to relieve the economic difficulties facing physicians who practice in areas lacking adequate health care services, especially obstetrics. This could take the form of further tort reform, establishment of a risk pool for obstetrical malpractice judgments over a certain amount, or even a direct incentive to physicians who practice in these areas and provide obstetrical care.

17. The state legislature should investigate the possibility of developing something like a sliding scale fee reimbursement model based on numbers of Medical Assistance patients treated by a physician. This would encourage some practitioners, who treat as many as 30% Medical Assistance patients, to remain in practice in their area.

18. The MMA should work with its members to assure that physicians insist that they serve a primary role in efforts to measure quality of care through data collection and analysis of patient outcomes.

19. The role of the Minnesota Medical Services Corporation of the MMA should be publicized as a valuable resource for assisting in practice management. Because of the many challenges now confronting both rural and urban physicians, they must learn to run efficient practices and learn how to cope with changes in the medical profession. Seminars should be developed on rural medical practice arrangements, networking, satelliting, capitalization of practice, mergers, buyouts, contracts, and training. Practice seminars should also be developed to educate physicians about practicing medicine with very little (or no) hospital practice.

20. The MMA and the Minnesota Hospital Association should develop a consultative service for small hospitals to educate them about networking, sharing services, and other cooperative efforts.

21. Continuing medical education courses should be offered to rural physicians on emergency recognition, stabilization and transfer, and long-term care.

22. The MMA should support the extension of peer review and quality enhancement efforts to the outpatient setting.

23. The MMA should focus a major part of its public education efforts on helping patients understand:

- the positive and negative aspects of competition and the intricately related health care delivery structure,
- insurance purchasing and how to be smart buyers of health care policies,
- that local health care institutions need local support and patronage,
- how to identify good quality medical care and understand that it can be found in a smaller or rural setting.

24. The MMA should work with other organizations to encourage the state legislature and local communities to continue working for new industry in farming areas and encourage physician members to assist in this effort at the local level.

25. The MMA should ask the governor to find ways to improve data collection and regional economic analysis to determine areas of the state suffering the greatest distress. Collective efforts should then be focused on those areas.

Other initiatives described in these recommendations are aimed at all of rural Minnesota or, when appropriate, the entire state.

MMA Task Force on Rural Health

James F. Knapp, M.D., Chairperson (Detroit Lakes)
Roy Good, M.D. (Faribault)
Jack Greene, M.D. (Chisholm)
Kevin Kirby, M.D. (Thief River Falls)
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Roy Yawn, M.D. (Worthington)

MMA Staff

Steve Dombrosk
Liz Quam

The Minnesota Medical Association offers this summary report to its members and interested organizations as a catalyst for discussion and debate. Please share your reactions to the report and proposed recommendations as well as your thoughts on the state of rural health care by completing the questionnaire on page 27.

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Appendix

Rural Health Initiative Survey of Physicians

The following survey will take about 10 minutes to complete. Unless otherwise noted, please check only one response for each question. If you have additional comments on any question, please submit them on a separate sheet of paper. Your participation in this important research project is greatly appreciated.

Q.1. Based on your experience in the practice of medicine in rural Minnesota, do you perceive a crisis in access to health care?
Yes 17 No 70 Depends/not sure 13

Q.2a. Over the past three years, have you seen a decline in the utilization of preventive care such as physicals and well-baby care?
Yes 31 No 51 Depends/not sure 18

Q.2b. Over the past three years, have you seen any increased evidence of patients delaying needed treatment?
Yes 37 No 50 Depends/not sure 13

Q.2c. Over the past three years, have you seen an increase in the number of patients lacking basic health insurance?
Yes 46 No 39 Depends/not sure 15

Q.3. Are you changing your pattern of referrals to other specialists?

Yes, referring more patients	24
Yes, providing more care directly	8
No, not changing referral pattern	64
Depends/not sure	4

Q.4a. Do you practice in a group arrangement or as a solo practitioner?

Solo	19
Single specialty group	29
Multi-specialty group	52

IF GROUP:
How many physicians are in your local group: ________

Q.4b. If you work in a group practice, has your clinic considered affiliating with a larger clinic, above and beyond signing a contract with an HMO?

Have already merged with larger clinic	12
Have been bought out by larger clinic	1
Have working association with larger clinic	4
Have considered affiliation	22
Have not considered affiliation	58
Not sure	3

IF AFFILIATED:
How many physicians are in your combined groups: ________

Q.4c. Do you or your group plan to recruit more physicians?
Yes 71 No 20 Depends/not sure 9

IF YES: What specialties? ____________________

Q.5. Do you feel that public policy on the following subjects is on the right track or heading off in the wrong direction?

	On Right Track	Wrong Direction	Depends/ Not Sure
Ensuring access to care	33	31	36
DRG reimbursement	15	65	20
Reimbursement variations between different areas	8	76	16
Changes in nursing home reimbursement	10	41	49
Caps on nursing home beds	10	49	41
Medical Professional Liability Insurance	27	60	13

Q.6. For each item listed below, please indicate how accessible this type of care is to patients in your area: very readily accessible, accessible with some significant effort, only accessible with great difficulty, or not accessible in any practical manner.

	Readily Accessible	Accessible With Effort	Difficult To Access	Practically Innaccessible	Depends /not sure
Emergency care	94	5	-	-	1
OB services	91	8	-	-	1
Primary care for elderly	90	8	1	-	1
Mental health services	48	41	9	1	1
Long term care	64	27	7	1	1
Referral services for special needs	66	28	-	-	-
Home health care support	74	22	3	-	1
Care for seasonal residents, transients, or tourists	79	15	3	-	3

Q.7. Below are listed some major participants in the health care delivery system. For each one, please indicate whether you believe that participant is part of the problem, helping to make things better, or some of both.

	Part of Problem	Making things Better	Some of Both
Medical Assistance & GAMC	63	5	32
Employers	18	30	52
Hospitals in your area	15	55	30
Insurance/BCBSM	40	22	38
HMOs	59	10	31
Minnesota Medical Association	6	72	22
State government	59	4	38
Medicare	74	2	24

Q.8a. Compared to three years ago, has your practice or clinic seen a change in the percentage of write-offs?

Yes, large increase	33
Yes, small increase	40
No, hasn't changed	13
Yes, decreased	1
Not sure	13

IF YES: Please estimate the percentages of write-offs below
As of 3 years ago: _______%
Currently: _______%
Expected 3 years from now: _______%

Q.8b. Compared to three years ago, have you seen a change in the percentage of your caseload using Medical Assistance (MA)?

Yes, large increase	25
Yes, small increase	43
No, hasn't changed	20
Yes, decreased	1
Not sure	11

IF YES: Please estimate the percentages of MA cases below:
As of 3 years ago: _______%
Currently: _______%
Expected 3 years from now: _______%

Q.9a. During the past three years have you laid off employees in your practice or clinic?

Yes 17 No 79 Depends/not sure 4

Q.9b. IF YES ABOVE: What categories of staff have been laid off in your practice or clinic (check all that apply)

Medical staff	2
Nurses/PAs	11
Lab/other clinical	6
Clerical/Administrative	12

Q.10a. Is your local hospital facing closure or restructuring?

Yes, facing closure	5
Yes, facing merger	6
Yes, may need to seek local tax support	14
No, local hospital stable	65
Depends/Not sure	10

Q.10b. If your local hospital were to close, how many miles is it to the next nearest hospital?

___________ miles.

Q.11. Compared to 3 years ago, have you seen a change in the size of your net pre-tax income from medical practice?

Yes, large increase	6
Yes, small increase	29
No, hasn't changed	19
Yes, small decrease	30
Yes, large decrease	13
Not sure	3

IF YES: Please write the percentage change below:

(circle one) + / - _______%

Q.12. Over the past three years have you observed a change in the number of patients for whom you provide to or refer for mental health services?

Yes, large increase	3
Yes, small increase	25
No, hasn't changed	59
Yes, decreased	2
Not sure	11

Q.13. Compared to 3 years ago, have you seen any general changes in the overall condition of the patients you are seeing?

Yes, generally healthier	12
No, no overall change	69
Yes, generally more sick	19

Q.14. If you could change two or three things about the environment in which you practice medicine, what would those changes be?

1. ______________________________
____

2. ______________________________
____

3. ______________________________
____

Q.15. Given all of the subjects mentioned in this survey, how likely would you say it is that you will continue to practice medicine in your area beyond the next year or two?

Very likely	73
Somewhat likely	13
Not at all likely	8
Depends/not sure	6

APPENDIX

Q.16. Below are listed some of the issues raised in this survey. For each one, please indicate the direction of change you expect over the course of the next three years.

	Expect Improvement	Won't Change	Expect Worsening	Depends /not sure
Utilization of preventive care	31	42	22	5
Patients delaying needed treatment	8	48	41	3
Patients lacking health insurance	8	25	61	6
Access to specialized care	24	62	12	2
Percentage of write-offs	3	17	75	5
Number of MA patients	3	20	71	6
Income from practice	6	22	65	7
Need for mental health care	7	59	26	8
Overall condition of patients	11	57	25	7

The following questions are asked for statistical background purposes only. Please remember that your individual responses to these questions will remain strictly confidential.

S.1. What is your sex?

Male 96 Female 4

S.2. Please check the range which includes your age:

Under 34	8
34-45	41
46-54	22
55-64	21
65-74	6
75 & over	2

S.3a. How many total years have you been in practice?

_______________ years

S.3b. How many years have you been in practice in your area?

_______________ years

S.3c. How many years do you expect to remain in practice in your area?

_______________ years

S.4. Have you changed your style of practice during the past three years?

Yes, solo to group	8
Yes, group to solo	5
No, haven't changed	87

S.5. Do you regularly admit to or treat patients at more than one hospital?

Yes 15 No 85 Depends/not sure -

S.6. Which of the following is your primary referral center?

The University of Minnesota	9
Mayo Clinic	25
Duluth Clinic	10
Fargo	9
Sioux Falls	4
Twin Cities	27
Other/Depends/not sure	16

S.7. Please check the range which includes your net pre-tax income from medical practice for 1985:

Less than $40,000	6
$40-60,000	19
$60-80,000	29
Over $80,000	46

S.8a. What is your specialty?

General Practice	11
Family Practice	46
OB/GYN	3
Internal Medicine	11
Pediatrics	4
Psychiatry	2
Radiology	3
Pathology	1
Other Medical	1
General Surgery	8
Other Surgical	7
Other Specialty	3

S.8b. Are you board certified or board eligible in your specialty?

Yes 90 No 10

S.9. In which county do you base your practice?

_______________ County.

Thank you very much for completing this questionnaire. Please return it in the enclosed pre-paid envelope. Detailed results from the survey will be published in a special issue of Minnesota Medicine in January. Look to the MMA Monitor for news of the Task Force on Rural Health.

Again, thank you for your prompt cooperation.

Q.4a. Do you practice in a group arrangement or as a solo practitioner?

IF GROUP:
How many physicians are in your local group:

LESS THAN 5:	30
5-15	34
OVER 15	37

Q.4b. If you work in a group practice, has your clinic considered affiliating with a larger clinic, above and beyond signing a contract with an HMO?

IF AFFILIATED:
How many physicians are in your combined groups:

1-20	26
21-60	26
61-120	24
OVER 120	24

Q.8a. Compared to three years ago, has your practice or clinic seen a change in the percentage of write-offs?

IF YES: Please estimate the percentages of write-offs below

	As of 3 years ago	Currently	Expected 3 years from now
1-4%	29	10	10
5%	30	10	6
6-9%	15	26	11
10%	16	14	18
11-14%	1	10	7
15%	3	10	12
OVER 15%	7	20	36

Q.8b. Compared to three years ago, have you seen a change in the percentage of your caseload using Medical Assistance (MA)?

IF YES: Please estimate the percentages of MA cases below:

	As of 3 years ago	Currently	Expected 3 years from now
1-4%	11	4	4
5%	18	7	8
6-9%	16	12	9
10%	21	16	8
11-14%	8	8	12
15%	12	15	14
OVER 15%	14	37	45

Q.10b. If your local hospital were to close, how many miles is it to the next nearest hospital?

0-10:	13
11-15:	17
16-20:	20
21-30:	31
Over 30:	20

Q.11. Compared to 3 years ago, have you seen a change in the size of your net pre-tax income from medical practice?

IF YES: Please write the percentage change below:

Declining Income	
Greater than -10%	17
-6% to -10%	14
-1% to -5%	11
Stable Income	
no change	21
Increasing Income	
1% to 5%	12
6% to 10%	14
Greater than 10%	11

S.3a. How many total years have you been in practice?

1-5 years	15
6-10	18
11-15	19
16-25	19
Over 25 years	29

S.3b. How many years have you been in practice in your area?

1-5 years	22
6-10	22
11-15	17
16-25	17
Over 25 years	22

S.3c. How many years do you expect to remain in practice in your area?

Less than 4 years	15
4-5	12
6-10	21
11-20	35
Over 20 years	17

S.9. In which county do you base your practice?
Health Planning Regions:

Northwest	7
Northeast	17
Central	18
West Central	8
Southwest	16
Southeast	20
South Central	14

TASK FORCE ON RURAL HEALTH
READERSHIP RESPONSE SURVEY

As part of its investigation into the condition of health care in rural Minnesota, the Minnesota Medical Association Task Force on Rural Health requests your opinions and responses to the material contained in its report. Please join in the policy development process as we enter the new legislative session by filling out the questionnaire below and mailing it to the Task Force on Rural Health at the Minnesota Medical Association, 2221 University Avenue SE, Minneapolis, MN 55414. Please respond no later than February 15, 1987.

The State of Rural Health Care

1. The Task Force evaluation of the situation in rural Minnesota is:
    - ____ Excessively optimistic
    - ____ Generally accurate
    - ____ Excessively pessimistic
2. The future of health care in rural Minnesota is
    - ____ brightening- the worst times are past
    - ____ stable- present conditions will endure for some time
    - ____ worrisome- the situation will decline

The Two Minnesotas - contrasts and common ground

3. Compared to urban Minnesota, the problems faced by rural physicians are
    - ____ very different in most ways
    - ____ more similar to the metropolitan than different
    - ____ different in some ways but with some common problems
4. Current differentials in reimbursement between urban and rural areas are
    - ____ a fair reflection of the differing costs
    - ____ an unjustified imposition on rural health providers

Policies for Change

5. In setting its priorities for the 1987 state legislature the MMA should place the rural health agenda
    - ____ at the top- the leading edge issue for the year
    - ____ as a high priority but not to the exclusion of other concerns
    - ____ as a low priority- not in the major thrust of MMA efforts
6. When selecting which portions of the rural agenda to emphasize the MMA should
    - ____ stress those problems shared by urban and rural areas together
    - ____ emphasize the unique difficulties facing rural Minnesota
    - ____ balance the two types of problems

Specific Task Force Findings and Recommendations

7. Please note below the one Task Force recommendation that you would emphasize most:

Information About Yourself

I am a physician ____, allied health professional ____, administrator ____, other ____.
I live in urban ______, rural ____ Minnesota.

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prospects for change

Preserving access and quality in rural areas

U.S. Senator Dave Durenberger

Sen. Durenberger chairs the Senate Finance Subcommittee on Health.

Historians who look back on the 1980s may end up making frequent references to what I like to call the "Law of Large Numbers." For better or worse, many of the public and private services we've all taken for granted are being exposed to the rigors of the marketplace.

We see it all around us — in the deregulation of airlines and bus service, in the breakup of AT&T, and in the changes occurring in the way health care is delivered all over America.

Few would question that this trend works best where there are sufficient customers to stimulate competition in the pricing and quality of services offered.

But, where there are fewer customers — as there are for many services in sparsely populated rural areas — the "Law of Large Numbers" can have devastating effects, especially in the short-term.

The changing health care marketplace, of course, is part of an evolution in health care nationally that predates the deregulation of other important public services.

The new Medicare payment system and increased emphasis on consumer choice continues trends that have seen the movement of many patients from smaller communities into regional centers like Mankato, Fargo-Moorhead, and Duluth. Much of this change has also been driven by technological advances that favor larger hospitals and multispecialty clinics over solo practitioners serving the dozens of small Hill-Burton hospitals that sprang up around the state in the 1950s.

Because it is so integral to the shaping of our health care system nationally, it's important that during this time of transition, the Medicare system play a positive role in maintaining access to quality health services in rural areas.

But, for some time now, it has been obvious that the Medicare payment system fails to fairly compensate many rural hospitals. Without help, we run the risk of seeing some types of procedures shifted to higher cost urban hospitals —both increasing the cost to Medicare and denying rural residents convenient access to vital health care services.

Fortunately, next year's budget reconciliation bill includes several provisions I authored that begin to do something about this disparity.

Among the items in the budget bill affecting rural hospitals is $200 million to finance two technical changes in how Medicare payments are made.

The first of the changes will more fairly finance Medicare's "outlier" program to help offset the cost of cases that substantially exceed anticipated lengths of stay or average costs for a particular diagnosis.

The second change alters the method of calculating Medicare payments to more accurately reflect the true cost of treating patients. The effect of this change will be to reduce the difference between urban and rural hospital payments under Medicare by at least $50 per patient.

This change isn't going to save any rural hospitals in and of itself, but it should narrow the gap in reimbursement rates between urban and rural hospitals from the current 25% to about 20%.

In addition to these two changes, which should benefit all rural hospitals, I was able to get three provisions in this year's budget bill that will benefit specific hospitals in Minnesota.

The first will use the Lake Region Hospital in Fergus Falls as a Medicare demonstration project, allowing the hospital to collect higher Medicare payments as a "Rural Secondary Referral Center."

The theory being tested with this demonstration project is that paying larger rural hospitals like Fergus Falls rates that are higher than rural rates, but lower than urban rates, will actually save Medicare money in the long run.

Under current rural Medicare rates, Fergus Falls and other hospitals like it are losing money on the more complicated cases. Without relief, these hospitals will have to refer cases they are losing money on to urban hospitals, which are paid at higher rates.

If this four-year demonstration project proves the point, as intended, larger rural hospitals in Minnesota and other states will stand to benefit.

A second provision I authored has the effect of grandfathering all existing Medicare "Regional Referral Center" hospitals for at least another three years.

Minnesota currently has three hospitals that fall under this category in the Medicare payment system — Willmar, Mankato, and Brainerd.

Being a "Regional Referral Center" can mean up to a million dollars or more a year in added revenues to larger rural hospitals that are reimbursed at Medicare rates comparable to those paid to hospitals in urban areas.

The third provision I had added to next year's budget bill that affects specific hospitals exempts "Sole Community Provider" facilities from having their Medicare payments reduced to pay for their capital costs. This category of hospitals includes facilities in sparsely populated rural areas that receive special treatment under Medicare. In Minnesota, "Sole Community Provider" hospitals include those in International Falls, Thief River Falls, Grand Marais, and Bigfork.

I wish I could say we've solved all the problems facing health care in rural areas in this year's budget reconciliation bill. Because we won't, I'm now working on a longer-range rural health improvement bill that I intend to introduce next year.

This legislation will continue the effort to give fairer treatment to rural hospitals in the Medicare system, promote a greater role for Medicare in financing mental health services, and further expand the tax-free treatment of health insurance premium payments for self-employed persons and others who are not in an employer-supported group insurance plan.

My proposal will also seek to eliminate regulatory barriers to rural hospitals desiring to diversify into "health and wellness centers" offering a broad range of in- and outpatient services.

In order to survive a continued decline in occupancy, for example, rural hospitals might want to combine traditional inpatient services with outpatient surgery, emergency facilities to stabilize patients, long-term care, hospice care, respite care, nutrition or wellness counseling, or a variety of other services.

My proposal would offer two-year matching grants to rural hospitals to finance the extra costs associated with analyzing and developing new health services or otherwise meeting the challenges they face in serving their communities.

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Medical education of the future

A Prototype

John E. Verby, M.D.

Dr. Verby is director of the Rural Physician Associate Program and a professor in the Department of Family Practice and Community Health, University of Minnesota.

Clearly we need to reexamine the approach we take to clinically train undergraduates interested in primary care. The assumption that this training can occur solely through short-term rotations in a tertiary care setting appears suspect. An alternative model, the University of Minnesota's Rural Physician Associate Program (RPAP), allows undergraduates to experience an extended preceptorship in a rural primary care setting. Not only is the RPAP experience more representative of the situation and practice style medical students will eventually be a part of, it also affords a richer clinical training opportunity. The program develops in these students a clinical competence comparable to that gained under a traditional format and typically increases students' confidence in their abilities to deal with patient problems.

Perhaps most important, RPAP exposes our medical students to the day-by-day challenges of a physician in the rural setting. Students soon find that these challenges are also accompanied by many benefits and much personal satisfaction. This program has become the best method for encouraging our students to opt for an outstate rural practice and, thus, provides more medical care in previously underserved rural areas.

An extensive literature search for successful physician redistribution plans showed Minnesota to be the only state in the U.S. and probably in the world where physician distribution problems were identified and researched and efforts to alleviate the problem successfully implemented and maintained. The result: one family physician or better for every 2,500 population throughout all 87 counties in Minnesota.

Reasons for this success are many, including the following:

- A farsighted and compassionate population throughout the state who elected legislative leaders with similar characteristics and who mandated that the University of Minnesota Medical School faculty and administrators develop an educational program that would lend itself to redistribution of the right kind of physicians into the physician-depleted rural Minnesota communities in 1970;
- A medical school faculty that accepted the challenge and a very courageous group of over 500 practicing rural physicians who became the core clinical faculty of the University's Rural Physician Associate Program. They have accepted the full responsibility *and liability* for teaching, working, and living with third-year undergraduate medical students and their families in their rural communities for 9 to 12 months (students live in their own homes or apartments). Besides this massive effort involving almost 500 undergraduate medical students in the past 15 years, the rural clinic faculty has given more than $1 million in stipends to RPAP students (who make no written or legal commitment to return to rural Minnesota to practice medicine). These physicians have assumed the legal responsibility for teaching undergraduate medical students and the liability for all service and advice these students provide to their patients;
- Thousands of helping professionals inside and outside the rural community hospitals who actively and willingly support the RPAP students and their families. These include hospital administrators, family social service (health and welfare) directors, nursing supervisors, clinic managers, therapists, technicians, ambulance drivers and emergency care staff, social workers, public health nurses, pharmacists, clinical psychologists, and other social and health care professionals;
- A sincere, dedicated, and experienced RPAP staff of clerical and professional people essential to sustaining and maintaining the RPAP effort;
- The ongoing support of the preceptor (clinical faculty practicing rural physician) and RPAP students and their families. Each student and preceptor pair receives at least a dozen 5-7 hour day visits by medical school clinical specialists in medicine, surgery, pediatrics, Ob-Gyn, psychiatry, neurology, and others as needed. In addition, special emphasis is placed on the importance of interpersonal relationships, understanding and persuasion, and interviewing techniques;
- The academic RPAP staff who are continually researching the educational aspects of this effort to confirm its credibility and validity as an academic effort within a medical school setting. RPAP medical students receive two academic quarters (six months) of credit

TABLE 1

Summary of RPAP students' chosen specialties

	Practicing Physicians	Residents in Training
Family Practice/GP	189	83
Internal Medicine	30	7
Surgery	10	5
Obstetrics-Gynecology	5	2
Pediatrics/Neonatology	4	2
Psychiatry	5	2
Medical subspecialties	3	—
Fellowships	—	14
Surgical subspecialties	10	7
Emergency Medicine	11	0
Other specialties	28	7
Total	259	129

TABLE 2

Number of RPAP participants choosing to practice in urban and rural locations

888 (88%)

Practice Location	Number
Rural Minnesota	110 (37%)
Other rural areas	61 (21%)
Urban Minnesota	75 (25%)
Other urban areas	49 (17%)
Total	295

toward graduation. This includes the last quarter of their junior year and the first quarter of their senior year. To participate in RPAP, students must pass National Board I prior to RPAP. Seven times in 14 years, RPAP students' scores on both National Board I and II were checked against their classmates' scores.[1,2] Although the overall scores were not significantly different, RPAP students' scores on the public health section were typically higher than their classmates'.

In a similar study, RPAP students scored significantly higher than their classmates on 33 of 50 items measuring confidence and self-esteem and behavioral, verbal (interpersonal), and mechanical skills.[3]

RPAP staff have noted the "cultural shock" of coming back to tertiary and secondary care teaching hospitals after being in a primary care teaching hospital in rural Minnesota. The RPAP students have become accustomed to being treated and respected as "Student Doctors," being comfortable assuming the role of a doctor, assuming responsibility for people (under direct 1:1 or better tutorials with practicing physicians), and experiencing success and failure on a continuous long-term basis, which is just not possible in the more typical six-week clinical clerkships during the junior and senior medical school years. The richness of the RPAP clinical long-term experience captures the imagination of most RPAP students, and 58% eventually practice medicine in rural areas throughout the country. ("Rural" refers to communities of less than 50,000.) Most RPAP student physicians locate in towns of less than 15,000. Sixty-five percent commit to family medicine and 10% to internal medicine or pediatrics. The other 25% go into a number of other specialties listed in Table 1. We know of no other medical school effort that has this kind of career outcome (Table 2).

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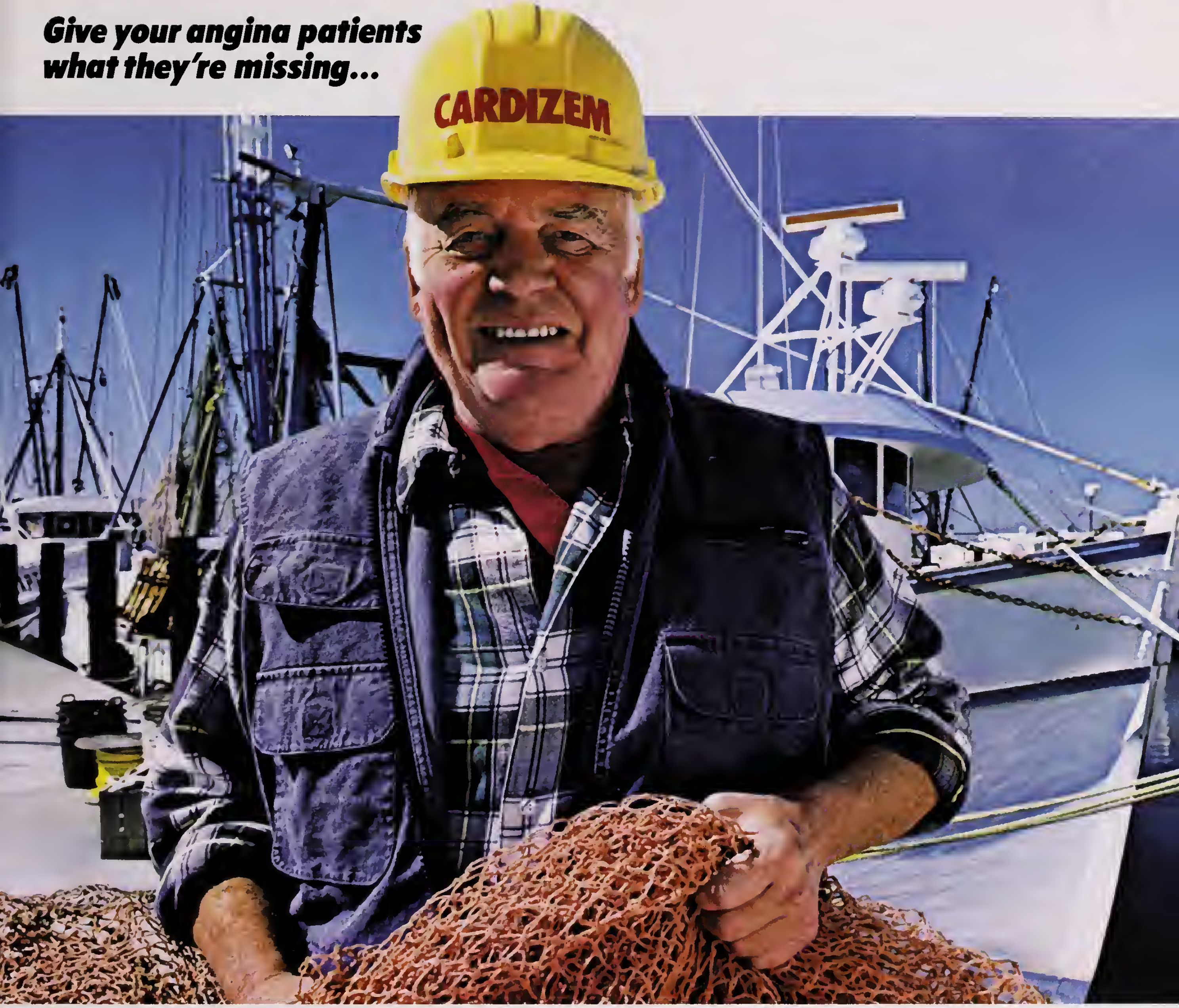

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PRECAUTIONS

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Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.
Nervous System:	Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.
Gastrointestinal:	Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.
Dermatologic:	Petechiae, pruritus, photosensitivity, urticaria.
Other:	Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

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A catalyst for cooperation

The Northern Lakes Health Care Consortium

Raymond G. Christensen, M.D., and
Carol Russell

Dr. Christensen is a Moose Lake, Minnesota, physician and president of the Board of Directors, Northern Lakes Health Care Consortium. Carol Russell is a principal with Borkenhagen/Russell & Associates, Inc., in Brainerd, Minnesota.

Dramatic changes in the provision and financing of health care in America have brought a growing crisis to rural communities. Rural health care institutions are being labeled an endangered species. Regulatory and reimbursement agencies send mixed messages to physicians and hospitals, often making competition more conducive than cooperation. Geographical distance, metropolitan centralization, and the special health care needs of the rural population further complicate the dilemma. For example, nearly one-third of the people in this country are considered rural, yet only 12% of the nation's physicians serve their needs.

Clearly, the health care industry is in a period of transformation and, in some outstate regions of the U.S., severe economic depression has complicated the situation to a serious degree. Methods of dealing with the present realities and future predictions, however, have not been as defined. A unique project begun in northeastern Minnesota is pursuing a direction radically different from the territorial infighting occurring among many segments of the health care industry.

It is only appropriate that the Northern Lakes Health Care Consortium—a young, multifaceted organization—was created in one of the most intensely competitive rural health care areas in the country. The 10-county region, bordered on the east by Lake Superior, was one of the original hotbeds of HMO and PPO development; in fact, eight HMOs currently compete there for enrollees. Multi-hospital chains, national corporations, private facilities, and others compose the care provider network that serves a population exasperated by unemployment and related economic problems.

Yet, just this spring, the hospital in Littlefork, Minnesota, was forced to close. The reason was not low utilization—in fact the mid-size facility showed competitive patient numbers within the region. The facility simply could not attract a resident physician, even after an exhaustive national search.

This unfortunate and ironic situation commonly occurs nationwide: even in a time of physician surplus, many rural areas of the United States are still underserved. Desire to find solutions to these problems has increased dramatically, not only among health care providers, but consumers as well.

Creating the Consortium

The Northern Lakes Health Care Consortium scenerio began in 1984 with a University of Minnesota study commissioned by the Blandin Foundation. The Foundation, located in Grand Rapids, Minnesota, assessed what was obviously an increasing problem and initiated a dialogue for long-term strategy. The resulting report, prepared by Ira Moscovice*, asserted that in order to survive, "rural hospitals must pull together rather than allow themselves to be pulled apart. . . . By drawing on a much richer network of resources, rural providers can improve their performance, decrease their isolation, and build—not diminish—their patient volumes."

From this document and accompanying recommendations grew a regional health care workshop in January 1985 designed to address common problems and collaborative solutions. Fueled by a surprisingly large response, the two-day session was considered a success. Not only were barriers to progress such as regional jealousy and poor communication discussed, strategies including networking and closer economic linkages were proposed. Most important, the participants agreed on the need to establish a regional association of medical providers. The idea quickly mushroomed in succeeding months and, in the summer of 1985, the Northern Lakes Health Care Consortium officially began work. Terry Hill, a health and human services professional for a regional development commission, was hired to administrate the fledgling group. By December 1985, the Consortium was incorporated as a nonprofit organization and included 18 hospitals, 140 physicians, 18 clinic administrators, and two medical schools among its dues-paying members.

"In the beginning, the Consortium may have seemed like a long shot," commented Hill. "But it's becoming more and more viable as time goes on. The accomplishments that have been made are certainly significant. We are acutely aware, however, that even while we are developing, so is the problem. It's lethal in the health care industry today not to have a vested interest in cooperation."

---

*Assistant director of health services and policy research, University of Minnesota.

Cooperating to Survive

The problem Hill refers to is actually a complex web of issues coming from both within and outside the medical community. Dramatic changes in the practice of medicine in the last few years have brought into question the survival of small hospitals: how and if they can be kept alive and how physicians fit into the scheme of things. Changes in the reimbursement system, rising local costs, and increasing specialization trends add up to greater financial pressure on rural health care institutions and a flow of patient dollars to the metropolitan areas. Cooperation for survival and use of state resources are essential.

The idea of a consortium based on rural issues is not unique nationally. What is unusual, is an organization predicated on hospital and physician partnerships. The various patterns of cooperation that have developed within the Consortium are as individual as the members themselves. Many of the administrators are intrigued with the potential that lies in shared services like joint purchasing. Some physicians are focusing on special projects such as a region-wide trauma study. Still others use the Consortium as a neutral facilitator in conflict negotiation. To people like Ira Moscovice, the Consortium's most important function lies in "the opportunity for northeastern Minnesota providers to start talking to each other . . . to help ensure their own viability."

Sharing Information

Terry Hill sees the group as facilitators and "brokers" in education—sponsoring workshops, conferences, and networking meetings; providing legislative advocacy, technical assistance, and problem solving; working directly with individual members on planning, physician recruitment, computer purchase, etc.; sharing information—newsletters, library services; educating the public; and conducting research and special projects. Many cooperative efforts and organizations have spun off of Consortium involvement. Recent examples include:

- the development of an Iron Range care provider coalition dedicated to finding methods of serving a fast-growing uninsured population;
- negotiations with national health care corporations to obtain substantial shared service discounts for consortium members;
- a marketing assistance program designed to assist rural hospitals and clinics with strategic planning, target marketing, public relations, and advertising;
- a public information project in which physicians share writing responsibilities for a series of newspaper articles on such subjects as mammography and new medical procedures;
- the eventual publication of a resource directory listing availability of pre-screened free and contracted services in education, advertising, financial analysis, and more;
- the creation of a group purchasing network for medical supplies;
- the development of a physician-led disease prevention project, and ambitious programs in mammography screening, weight loss, and smoke-free environments in several cities including an Indian reservation.

Consortium Board Member Dr. Jack Greene, a family physician with the Mesaba Clinic of Chisholm, feels this multiplicity of benefits is merely an offshoot of the underlying need for cooperation. "We're finding in these times of competition, we are keeping strange bedfellows. It used to be hospitals bent over backwards to keep doctors happy. Now, we as physicians feel we are competing with these institutions. It's not that this situation is completely unhealthy, it just shows us why we must also find ways to work together."

Notes Blandin Foundation Senior Officer Kathryn Jensen, "The hospital ranks with the church and school as one of those elements of rural society through which communities define themselves. It plays a significant role functionally, symbolically, and economically. Yet, the rural hospital is one of the weak links in today's health system. To help improve rural health care in northeastern Minnesota, the Foundation believes the Consortium can strengthen the viability of rural professionals and institutions through greater cooperation and information sharing."

The heart of the Northern Lakes Health Care Consortium's success lies in the belief that the rural health care situation is not only a crisis, it is an opportunity. While many factors have had a negative impact on the health care industry in recent years, these same forces have also prompted the development of new, constructive means of improving services—"catalysts for cooperation" as Hill describes it. The uniqueness of the Consortium's provider partnership is just one model of such progress—a model that may soon be a means for medical advancement nationwide.

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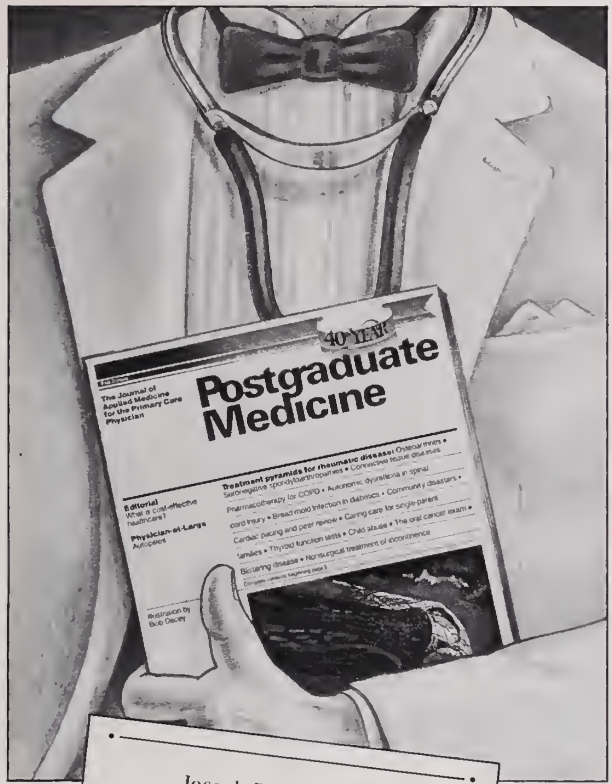
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contributions

Teen-age sexual activity in rural Minnesota

*Barbara P. Yawn, M.D.**, *and Roy A. Yawn, M.D.* +

Students at a rural Minnesota high school were questioned about their sexual and contraceptive practices. About 1 of every 3 students had had sexual intercourse; about 1 of every 10 reported having sexual intercourse regularly; and about 1 in 14 had had intercourse with 5 or more partners. About one-third of the girls who had intercourse regularly did not use contraceptives.

American society has identified teen-age sexual activity and pregnancy as problems worthy of special study and action. Urban adolescent pregnancy and pregnancy-related activities have been extensively studied.[1,2] Many urban areas are proceeding with pregnancy prevention programs.[3]

Our rural community has been developing a curriculum on human sexuality and family living for grades K through 12 with the prevention of teen-age pregnancy as its primary goal. Some individuals on the school board and in the community argued that teen-age sexual activity and pregnancy are urban problems and that there is no significant problem locally.

In searching the literature, we found statistics on this subject as it relates to urban teens of various racial, socioeconomic, and educational backgrounds,[4,5] and studies of rural southern blacks.[4,5] We found no figures directly related to rural areas of similar socioeconomic composition that we could use to support our position that the schools need to address the problems of teen-age sexuality and pregnancy. We conducted this study to obtain data from a rural, farming district of Minnesota and to compare that data to the available urban data.

Methods

An 87-item questionnaire was administered to 486 students at a rural high school in southwestern Minnesota in grades 10, 11, and 12 during school hours on May 17, 1985. The questionnaires were given to all students in home room, filled out in that classroom, folded over, and placed in an envelope on the teacher's desk. Teachers were given written instructions to read to the students. The teachers were asked to remain in their desk chairs, to keep students from working together on their answers, and to avoid reading the questionnaires returned to their desks. The students had 15 minutes to complete the questionnaires.

A total of 480 students—257 boys and 223 girls—completed the questionnaires.

The students were asked to state their grade and sex, but no other identifying information was requested. Participation in a mandatory six-week sexuality course in the tenth grade was verified. Students were asked about their desires for information about sexual values and contraceptives. They were asked about sexual experience including age at first intercourse, frequency, and number of partners. Questions about pregnancies and their outcomes were forbidden by the school administration. A final section of the questionnaire asked about specific information delivered by one of the authors during the tenth-grade sexuality course.

Results

Table 1 details the percentage of students who have had sexual intercourse at least once. The results are broken down by grade and sex. Of 480 students, 173 (36%) had had intercourse. Over 50% of twelfth grade girls had had sexual intercourse.

TABLE 1
Percentage of 480 high school students reporting having had sexual intercourse at least once

Grade	Boys	Girls
	(N=257)	(N=223)
10th	22.1%	24.6%
11th	44.9	37.0
12th	36.9	52.4
All grades	34.2	38.1

Table 2 shows the frequency of sexual intercourse in the 173 students who had been sexually active. About one quarter of these students reported having sexual intercourse regularly. Thus, 47 students (about 10% of the school population) said that they were having sexual intercourse on a regular basis.

Table 3 lists the number of sexual partners of the 173 sexually active students. Over 50% of the boys and girls in this group had had more than one sexual partner. Over 25% of the boys and over 10% of the girls reported having had 5 or more partners.

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*Private practice in Family Practice, Worthington, Minnesota.
+Private practice in Internal Medicine, Worthington, Minnesota.

TABLE 2

Frequency of sexual intercourse among 173 sexually active high school students

	Boys	Girls
	(N = 88)	(N = 85)
Once	11.3%	21.1%
A few times	56.8	49.4
Regularly	27.2	27.0
No answer	4.7	2.5

TABLE 3

Number of sexual partners among 173 sexually active high school students

	Boys	Girls
	(N = 88)	(N = 85)
One	36.3%	45.8%
2 to 4	31.8	40.0
5 or More	27.2	11.7
No answer	4.7	2.5

Table 4 contains information about the use of contraceptives in the sexually active group of 173 students. When asked if they or their partners used contraceptives, about half of the group reported regular use of contraceptives. The most commonly used contraceptive was the condom (47.3%). Forty students (23% of the sexually active group) said that neither they nor their partners used contraceptives.

Table 5 focuses on the contraceptive practices of only those students who reported regular sexual intercourse. Only 4.1% of the boys in this group said that they or their partners did not use contraceptives, but 30.4% of the girls reported that contraceptives were not used.

Table 6 deals with the age at first intercourse in the sexually active group. About half of this group first had intercourse at age 15 to 16.

Discussion

Our results indicate that sexual intercourse is relatively common in these high school students, even in the tenth grade. More significant are the findings that about 10% of this population has had sexual intercourse regularly, and that 7% has had 5 or more sexual partners. We believe that this indicates a high risk of sexually transmitted disease. About 30% of the girls regularly having intercourse did not use contraceptives and are at high risk of pregnancy.

The results of our study are very similar to studies of urban women. Zelnick and Kantner[1] found that 42.3% of urban white women between the ages of 15 and 19 had had sexual intercourse before marriage. This is comparable to our figure of 38.1% in this sample of rural white women in grades 10, 11, and 12. Zelnick and Kantner calculated an average age of first intercourse of 16.4 years in urban women. Our findings indicate that over half of the sexually active women we studied had first intercourse at age 15 to 16. Zelnick and Kantner also reported that 76% of white women used contraceptives at least part of the time, compared with about 78% of our group.

TABLE 4

Use of contraceptives among 173 sexually active high school students

	Boys	Girls
	(N = 88)	(N = 85)
Always	50.0%	51.7%
Never	18.1	28.2
Sometimes	26.1	16.4
No answer	5.8	3.7

Rural educators, health care providers, and parents must be convinced that the problems of teen-age sexual activity and pregnancy are significant and that efforts should be made to solve them. Analysis of teen-age sexual practices may help us realize that a large number of our children may become the victims of unplanned pregnancy. Entire communities need to address this problem because the solution may involve not only the dissemination of contraceptive information, but also the teaching of value systems, self-control, self worth, and the facts about chemical use and abuse.

TABLE 5

Use of contraceptives among high school students having sexual intercourse regularly

	Boys	Girls
	(N = 24)	(N = 23)
Used contraceptives	50.0%	60.8%
Did not use contraceptives	4.1	30.4
Sometimes used contraceptives	45.8	8.6

TABLE 6

Age at first intercourse among 173 high school students

	Boys	Girls
	(N = 88)	(N = 85)
12 or less	11.3%	2.3%
13 to 14	22.7	20.0
15 to 16	40.9	56.4
17 to 18	20.4	17.6
No answer	4.7	3.7

Adolescent pregnancy is not just an urban issue. It is an all-American issue.

Acknowledgments

The authors thank Dr. Dale Jensen for his invaluable cooperation in the completion of this study.

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Cesarean section rates in a rural Minnesota town (1976-1984)

Mary E. Angstman, B.S.N., Robert T. Olson, M.D.+,*
Kurt B. Angstman, M.D.#

Recent trends in cesarean section rates, ranging to over 20% of all deliveries, have raised the interest of many. Typically, the data published are from national centers or from large obstetrical centers. To the best of our knowledge, this is the first study designed to document the use of cesarean sections by private family physicians in a rural community hospital.

Since 1970, the nationwide percentage of deliveries by cesarean section has increased fourfold, from 5.5% in 1970 to 20.3% in 1983.[1] Although the reported increases in cesarean section rates is generally given as the rate in a large series or an urban setting,[2,3] one study showed an almost 50% difference in 1981 between small hospitals in the North Central region (9.5%) and the national average (17.9%).[4] Only one article has been published reporting the results of a rural obstetrician's private practice;[5] the remainder of the literature is from larger institutions, many of which are teaching institutions. This is a report of the cesarean section rates in a small, western Minnesota town over a nine-year period (1976-1984).

Canby, Minnesota, population 2,100, has a 25-bed hospital that was staffed with three to four family physicians during the nine years of this study. Efforts were made to record every delivery occurring at the Canby Community Hospital during this period. All 1,750 charts were retrospectively reviewed and the information pertaining to type of delivery, indication for cesarean section, gestational age, apgars, maternal age, birth weight, and parity were obtained.

Results

There were 55 cesarean sections performed out of a total 875 deliveries, an incidence of 6.2%. Of these 55 cesarean deliveries, 27 (49%) were repeat sections. Among the 28 primary sections, 13 (48% of primary sections) were performed for dystocia. Breech presentation was responsible for 8 primary sections (29%), while fetal distress accounted for 5 (18%), maternal distress 1 (4%) and miscellaneous 1 (Table 1).

Of the 820 vaginal deliveries, 10 were of breech presentation—1.2% of all deliveries. The total incidence of breech birth was 2.1% (18/875). There were 88 (11%) forceps deliveries during this study period, with a majority being outlet forceps. The average stay was 6.93 days for cesarean deliveries compared with 4.33 days for vaginal births.

Premature births accounted for 4.2% of overall deliveries. Of the cesarean deliveries, 3.6% were premature, as were 4.3% of the vaginal deliveries. There were 12 fetal deaths during this nine-year period. Eleven of these babies (1.3%) were delivered vaginally, one (1.8%) was delivered by cesarean.

TABLE 1
Reason for cesarean section

	N	%
Primary cesarean section	28	51
dystocia	13/28	48
breech	8/28	29
fetal distress	5/28	18
maternal distress	1/28	4
miscellaneous	1/28	4
Repeat sections	27	49

Yearly data: During the years of this study, the cesarean section rate rose from 2.2% in 1976 to 15.9% in 1984. However, because of the small number of cesarean births per year, year-to-year differences are not as significant as are the general trends. When the study is divided into equal thirds, one sees an almost 140% increase in the cesarean section rates—from 4.1% to 9.7% (Figure). There was also an increase in the percentage of forceps deliveries, from 7.5% to 11.8%. Thus, the "operative" (cesarean plus forceps) rate increased from 11.5% to 21.5%.

Discussion

To the best of our knowledge, this is the first reporting of the obstetrical practices of family practitioners relating to cesarean section rates performed in a rural setting. There have been several studies citing cesarean section rates ranging as high as 27%.[6] However, most of these reports have been generated by urban hospitals with teaching responsibilities. There has been only

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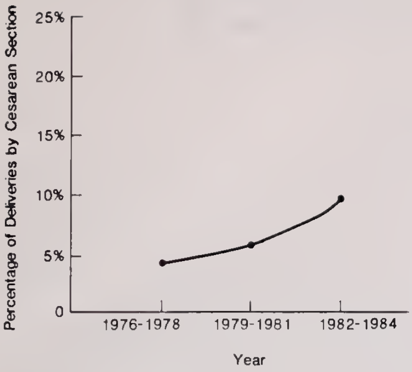

FIGURE - The cesarean section rate has increased almost 140% (from 41% to 9.7%) during the nine years of this study, (1976-1984).

one report in the literature of the cesarean section rate of a private practitioner;[5] his rate was 9.5%, from 1975 to 1980.

The cesarean section rate of 6.2% over the past nine years at Canby Community Hospital is much lower than the stated national average of 20%. During the course of this study the national average varied from 10.4% in 1975 to 20.3% in 1983.[1] During this period, the cesarean section rate in Canby went from a low of 2.2% in 1976 to 15.9% in 1984. According to one study,[4] in hospitals with less than 100 beds, the rate of cesarean sections in 1983 was 9.6%, compared to a rate of 20% in hospitals with more than 500 beds. This rate is comparable to that reported by the private practice obstetricians mentioned above[5] and by that seen in our study.

There have been suggestions that the recent increase in cesarean sections is mainly the result of dystocia, breech presentation, fetal distress, or a previous section. Forty-nine percent of all sections were performed because of a previous section. The realization that repeat sections were a major reason for the increased frequency of cesarean sections prompted the American College of Obstetricians and Gynecologists to delineate a set of guidelines for permitting vaginal delivery following a previous section.[7] In 1983 there was not an increase in the vaginal births after cesarean (VBAC). VBAC requires emergency facilities with 24-hour capabilities; routine trial of VBAC should be pursued at obstetrical centers with these capabilities. Canby Community Hospital is equipped to perform emergency cesarean sections and two previous section patients did deliver vaginally without incident during the nine years of our study.

Breech indications for cesarean section were summarized by Fehr.[8] A breech presentation of other than frank breech, hyperextension of the fetal head, an estimated fetal weight of greater than 3500 gm, maternal obesity (>200 lbs.), and inadequate X-ray pelvimetry are all indications for cesarean delivery. Almost a third of the primary sections in this study were performed because of a breech position.

The rates of 48% and 18% for dystocia and fetal distress, respectively, are similar to those seen in other studies.[2,3,5]

Certain large centers have demonstrated a decrease in the number of forceps deliveries with an increase in cesarean section rate.[2] In our study, however, we noticed a slight increase in the use of forceps over the nine-year study period. The stated decrease in forceps deliveries may be due to the fact that the use of mid-forceps is decreasing as cesarean sections become safer. However, in our group, the forceps deliveries were all outlet in nature. The forceps rate of 11% in CCH correlates well with the 1980 rate of 8.2%, shown in one study.[2]

These data demonstrate that the obstetrical practice of family physicians in this rural setting have a lower rate of cesarean sections than the nation as a whole. The reasons for this may include (1) fewer high-risk obstetrical patients, (2) more conservative practices, or (3) perceived differences in the legal climate. But more study into the reasons for this difference is clearly indicated.

Acknowledgments

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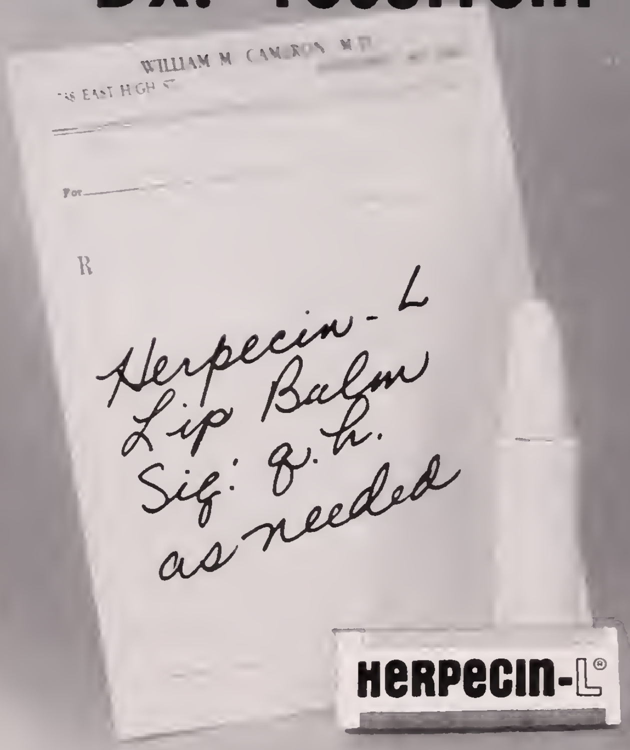

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Management of multiple trauma in a rural setting

*David M. Larson, M.D., and Mark S. Mellstrom, M.D.**

Major trauma in rural areas presents unique problems that challenge the local hospital and the primary care physician. Reduction of morbidity and mortality requires rapid evaluation, resuscitation, and stabilization before transport to the regional trauma center. This can best be accomplished through an organized team approach that includes staff education and the establishment of emergency department protocols.

Rural trauma is a major problem in this country; up to 70% of trauma fatalities occur in rural areas, even though 70% of the population lives in urban areas.[1]

Over the past three decades, numerous studies have defined the concept of preventable trauma death in both urban and rural populations.[2] With the development of Regional Trauma Care Systems, preventable trauma mortality has decreased.[3] However, recent studies show that preventable trauma deaths still occur, especially in many rural areas.[4,5]

There are a number of problems unique to the management of *rural* trauma that probably contribute to the higher number of fatalities. These include the following: (1) there may be longer delays between the injury and its discovery by a passerby; (2) there are often greater distances between the scene of the accident and the hospital; (3) prehospital care in many rural areas may be performed by volunteers with basic EMT or first aid level training who are unable to provide advanced airway management or volume resuscitation; (4) emergency departments in small rural hospitals may be staffed by primary care physicians without the knowledge or skills needed for critical trauma management; (5) there may be relatively few trauma cases at the rural hospital, making it difficult for physicians and nurses, regardless of their level of training, to maintain their skills; (6) rural hospitals may not have 24-hour physician and ancillary staff coverage (i.e., anesthesia, X-ray, and lab), resulting in delays while emergency personnel are en route to the hospital; and (7) delays may occur in the initial stabilization of the patient in hospitals where there are not enough physicians or nurses available, especially in situations involving multiple victims.

Possible Solutions

Direct transport to the trauma center, sometimes 60 to 90 minutes away, bypassing the rural hospital, has been shown to be ineffective. Certo et al. reviewed fatalities following vehicular trauma in rural Vermont from 1975 to 1979. In that study, 22% of the fatalities were judged to be preventable. The errors in management included: (1) inadequate airway control, (2) inadequate initial volume replacement, and (3) failure to recognize surgical urgency. They concluded, however, that stabilization and resuscitation are necessary *before* transfer, and that bypass of the local hospital in favor of the regional trauma center would not save lives.[5]

Helicopter transport of multiple trauma patients to the trauma center plays an important role in improved trauma care. It decreases the time from injury to definitive care and allows management by advanced life support personnel during transfer. However, there is still much room for improvement.

A recent study by Leicht et al. demonstrated that even with the use of a medical flight team (emergency physician and nurse) for transport, there were major delays prior to definitive care. The delays were caused by failure of the referring physician to examine, stabilize, and perform procedures on the patient before the arrival of the flight team. Even though transport is faster by helicopter, lack of management before transfer may increase morbidity and mortality.[6]

The approach to improving rural trauma care should therefore be to train the primary care physician to resuscitate and stabilize the victim, and to establish trauma protocols in local hospitals that minimize delays in stabilization and transfer.

Trauma Care in Northfield, Minnesota

In an effort to improve the quality of trauma care in Northfield, Minnesota, a community of 12,000 with a 35-bed hospital, three steps were taken: (1) physician and nurse education was begun, (2) a trauma protocol promoting prompt resuscitation and stabilization of patients before transfer was established, and (3) monthly case review conferences were initiated.

Physician and nurse education: The Emergency Department at Northfield hospital is staffed by nine primary care physicians (Family Practice). All physicians were recently certified in the Advance

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Trauma Life Support course of the American College of Surgeons. Nurses attended conferences on trauma management, and all emergency personnel participate in mock disaster drills simulating moulage scenarios.

Trauma protocol ("Code Red"): In severely injured multiple trauma patients the elapsed time from injury to definitive care is an important factor affecting morbidity and mortality. Therefore, establishing a protocol for rapid assessment and stabilization of the trauma victim in accordance with ATLS guidelines should result in less delay and more appropriate treatment, decreasing morbidity and mortality.

Since physicians and other essential personnel are not always in the hospital, it is important that the prehospital care giver warn the hospital in advance to prepare for the trauma patient. At Northfield Hospital, the prehospital care giver initiates the trauma protocol ("Code Red") when a victim with the following is encountered: (1) shock (BP less than 90 or pulse higher than 120 in an adult), (2) respiratory distress, or (3) altered level of consciousness. These criteria provide a rapid way to identify those patients who may have severe injuries and would benefit from rapid stabilization and transfer to a trauma center.

When the hospital is notified of a "Code Red," the nursing supervisor calls in the "Trauma Team," which consists of:

- three physicians (with multiple victims, minimum of two per patient)
- two nurses (from ER or ICU)
- laboratory technician
- X-ray technician
- anesthetist
- social worker
- recorder (extra nurse or ward clerk)

The nursing supervisor then prepares the needed equipment and supplies and alerts the air ambulance to prepare for a possible transport.

Each team member has preassigned responsibilities. One physician is a team leader and is responsible for supervising the overall care of the patient, performing primary and secondary surveys, and arranging disposition. The other physicians are present to perform procedures delegated by the team leader. These may include intubation, cricothyroidotomy, chest tube placement, insertion of central lines or high volume infusion devices, peritoneal lavage, etc. One nurse maintains and records intravenous solutions and medications. The other nurse exposes the patient by cutting off all clothing, and obtains supplies. The laboratory technician draws a trauma battery that includes type and cross, CBC, UA, electrolytes, glucose, and arterial blood gases. The X-ray technician is prepared to obtain high priority X-rays such as lateral C-spine, chest, and pelvis. The anesthetist assists with airway management and IV placement. The social worker offers support to and communication with family members.

It is important to keep adequate records during evaluation and stabilization of the patient. Because the physician usually has no time to write or dictate reports to send with the patient, the recorder uses a trauma flow sheet to document all important clinical information (Figure).

In small hospitals that rarely encounter critically injured patients, a protocol such as this is important to avoid confusion and delays. When treating multiple trauma patients, every minute counts.

Case reviews: At our hospital, most multiple trauma patients are transferred to a regional trauma center. Our monthly critical care conference enables us to review and discuss each of these cases. The reviews are very educational and help us to "trouble shoot" and avoid repeating mistakes. Physicians from the regional trauma centers have been willing to attend these conferences to give us follow-up and additional information.

Conclusion

Any physician, especially one unfamiliar with trauma management, who finds him or herself alone with a critically injured patient in a small emergency room in the middle of the night, may feel distressed and even overwhelmed. Today, nearly every small ER has access to a helicopter that will come and take the problem away. But it would be a mistake for the primary care physician to do little or nothing for the patient while waiting for the helicopter. These patients should be managed aggressively, with rapid evaluation and resuscitation in order to avoid any delays in transport that could increase morbidity or mortality. This can best be accomplished by educating physicians in initial trauma management and by establishing emergency department protocols according to available local resources.

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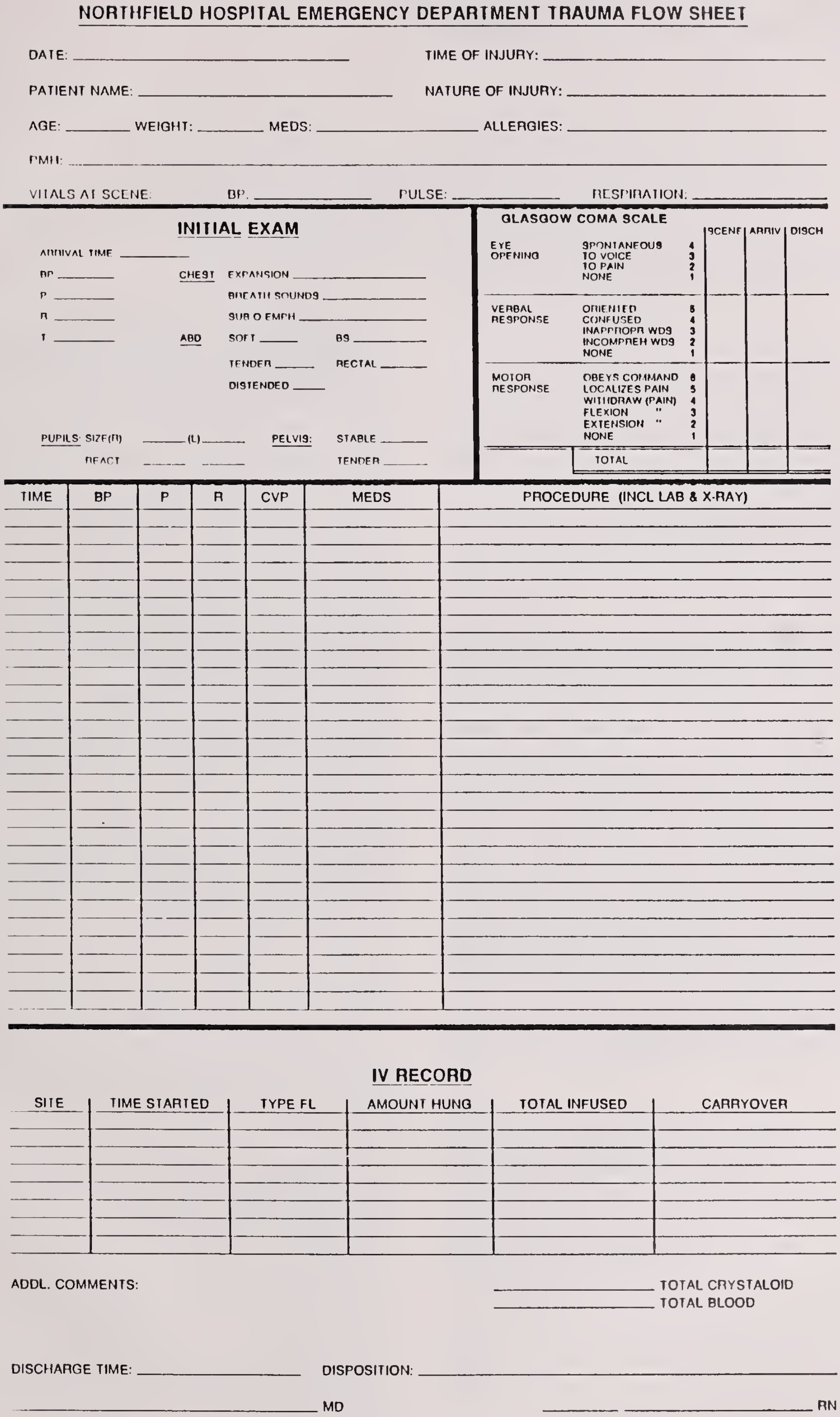

NORTHFIELD HOSPITAL EMERGENCY DEPARTMENT TRAUMA FLOW SHEET

DATE: ____________ TIME OF INJURY: ____________

PATIENT NAME: ____________ NATURE OF INJURY: ____________

AGE: ______ WEIGHT: ______ MEDS: ____________ ALLERGIES: ____________

PMH: ____________

VITALS AT SCENE: BP: ________ PULSE: ________ RESPIRATION: ________

INITIAL EXAM

ARRIVAL TIME ________

BP ________ **CHEST** EXPANSION ________

P ________ BREATH SOUNDS ________

R ________ SUB Q EMPH ________

T ________ **ABD** SOFT ______ BS ________

TENDER ______ RECTAL ______

DISTENDED ______

PUPILS: SIZE(R) ______ (L) ______ **PELVIS**: STABLE ______

REACT ______ ______ TENDER ______

GLASGOW COMA SCALE

			SCENE	ARRIV	DISCH
EYE OPENING	SPONTANEOUS	4			
	TO VOICE	3			
	TO PAIN	2			
	NONE	1			
VERBAL RESPONSE	ORIENTED	5			
	CONFUSED	4			
	INAPPROPR WDS	3			
	INCOMPREH WDS	2			
	NONE	1			
MOTOR RESPONSE	OBEYS COMMAND	6			
	LOCALIZES PAIN	5			
	WITHDRAW (PAIN)	4			
	FLEXION "	3			
	EXTENSION "	2			
	NONE	1			
	TOTAL				

TIME	BP	P	R	CVP	MEDS	PROCEDURE (INCL LAB & X-RAY)

IV RECORD

SITE	TIME STARTED	TYPE FL	AMOUNT HUNG	TOTAL INFUSED	CARRYOVER

ADDL. COMMENTS:

________ TOTAL CRYSTALOID
________ TOTAL BLOOD

DISCHARGE TIME: ________ DISPOSITION: ____________

____________ MD ____________ RN

Figure (actual size 11 X 14)

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16-17 **Laser Surgery in Otolaryngology** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55406; (612) 874-5461.

30 **Detection and Diagnosis of Substance Use Disorders** St. Paul-Ramsey Medical Center; St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

30-31 **Current Concepts of Cardiology** Abbott Northwestern Hospital; Holiday Inn, Alexandria, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

Jan. 25-Feb. 1 **Grenadines/Orinoco River Air/Sea Cruise** North Central Medical Conference; Aboard the Ocean Princess. CONTACT: North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

FEBRUARY 1987

2-6 **Updates in Clinical Gastroenterology** Mayo Clinic/Mayo Foundation, Buena Vista Palace, Lake Buena Vista, Florida. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

6 **Burn Care Update** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **Current Concepts of Cardiology** Abbott Northwestern Hospital; Sawmill Inn, Grand Rapids, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

9-13 **Practical Concepts in Rheumatology and Musculoskeletal Disease** Mayo Clinic/Mayo Foundation; Sheraton Scottsdale, Scottsdale, Arizona. CONTACT: William L. Nietz, Mayo Clinic, 200 First Street SW, Rochester, Minnestoa 55905; (507) 284-2085.

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26 **Advanced Cardiac Life Support Certification Course** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

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28 **Minnesota Society of Anesthesiologists Spring Scientific Meeting;** Minnesota Society of Anesthesiologists; Marriott Hotel, Bloomington, Minnesota. CONTACT: Peter A. Southorn, M.D., 200 First Street SW, Rochester, Minnesota 55905: (507) 286-8701.

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2-4 **Primary Care Medicine** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

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10 **Third Annual Duluth Heart Conference** The Duluth Clinic, Ltd. & St. Mary's Medical Center, Regional Heart Center; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

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Opportunity For Physician with interest in Sports Medicine to provide medical consultation to a physical fitness program for public safety employees. Duties include performing periodic medical examinations, monitoring and interpreting graded exercise tests, interpreting spirograms, and performing limited administrative duties. Contact: David A. Paulson, M.D., at (612) 292-7726. (R)

Medical Practice Sales and Appraisals: We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice, contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, Pennsylvania 19004; (215) 667-8630. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Psychiatrist: BC/BE psychiatrist needed by our 150-member multispecialty medical staff and hospital in St. Cloud, Minnesota. Outstanding opportunity to establish a private practice with immediate income of $72,000 for 15 hrs/wk as medical director of hospital-based outpatient mental health program. An active 53-bed mental health unit psychiatric staff consisting of 3 psychiatrists, 2 psychologists, social workers, mental health nurses, and ancillary staff provides excellent clinical support. St. Cloud has three area colleges and an excellent independent and parochial school system. Easy one-hour freeway driving to Minneapolis/St. Paul provides outstanding cultural opportunities. St. Cloud is an ideal location for private practice and raising a family in a small town environment. Respond with CV or call collect to: R.J. Cumming, M.D., Director of Medical Affairs, St. Cloud Hospital, 1406 North 6th Avenue, St. Cloud, Minnesota 56301; (612) 255-5626. 6-3/87

Wanted: Board Eligible/Certified Internist for primary care clinic near 75-bed hospital. Ideal community of 20,000 with a business area of 60,000 centered in a four-season recreational area. Specialty medical services available locally. Incentive earnings plan, insurance, and retirement plans available. Contact: Dennis Knudson, Administrator, LP Medical Clinic, 820 9th Street North, Virginia, Minnesota 55792. 5-2/87

St. Peter, Minnesota: Available immediately. Position of senior staff physician to work with progressive and forward-looking staff and administration to meet the medical needs of the patients at St. Peter Regional Treatment Center. JCAH accredited. Delightful setting in the heart of the Minnesota River Valley. University town of 10,000, ten minutes from Mankato, and one hour from the Twin Cities. Salary range in high-60s to 70s for BC/BE according to experience with excellent fringe benefit package and an opportunity for expanding income through minimal call. An AA/EOE employer. For further information contact: S.K. McHutchison, M.D., Clinical Director, St. Peter State Hospital, 100 Freeman Drive, St. Paul, Minnesota 56082; (507) 931-7707. (R)

Physicians Needed Over 400 opportunities nationwide!! Call (612) 786-1929 or send CV to: Earl Czech, North Central Staff Services, Inc., 4175 Lovell Road, Suite 108, Circle Pines, Minnesota 55014. 1-1/87

Internist needed for a busy, two-member practice in a community of 40,000 near Minneapolis, Minnesota. Competitive first year salary with incentive benefits and early partnership. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. 6-2/87

Green Bay, Wisconsin: 27-physician multispecialty group seeking BC/BE physicians in the following specialties: Family Practice, Ophthalmology, ENT, Dermatology, Plastic Surgery, Radiology, OB-GYN, Internal Medicine, and Pediatrics. Green Bay is a progressive community with an easy lifestyle, ample outdoor activities, excellent schools, and cultural activities. The Clinic offers competitive salary and excellent fringe benefits. Interested physicians please contact: W.J. Mommaerts, Administrator, West Side Clinic, sc, PO Box 19070, Green Bay, Wisconsin 54307-9070. 4-3/87

General Internist: We are in need of a qualified internist, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

General Internist to join our group of five family practitioners, one obstetrician, and one surgeon. We are located in a central Minnesota community of 9,000. Most aspects of internal medicine are available to this already established practice, including gastroscopy and invasive cardiovascular monitoring. Competitive salary with option to buy into group after one year. For information contact: Michael Neudecker, M.D., Medical Center PA; 209 First Street SE, Little Falls, Minnesota 56345; (612) 632-6611. (R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Physician or General Internist needed for an established primary care clinic of four family physicians and a general surgeon. Guaranteed first-year salary with benefit program. Located in a small town on the beautiful north shore of Lake Superior (service area population of 12,000) only 22 miles from Duluth, which provides excellent referral and continuing education resources. Call collect: (218) 834-2171, or write: Steve Bjorum, Executive Director, Community Health Center, Inc., 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Lutsen Sea Villa: two bedroom, two bath, with new kitchen. Completely furnished. Only 50′ from the crashing waves of breathtakingly beautiful Lake Superior. Income program through Lutsen Resort available. $80,000 - $85,000. Call: Jim (612) 333-8361. (R)

Family Physician to join group of six board certified family practitioners and one board certified general surgeon. Liberal vacation and educational allowances. $50,000 salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in Southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, Minnesota 56013; phone (507) 526-7371; personal phone (507) 526-3177. Marjeane Werner, Clinic Administrator; phone (507) 526-7371; personal phone (507) 854-3682. (R)

Emergency Medicine: Emergency physicians needed to staff clinic and hospital emergency room. Multispecialty group located in ideal area 90 minutes from Minneapolis/St. Paul, excellent schools, etc. 132-bed hospital has an active educational program including ACLS. Contact: Richard W. Golly, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. (R)

Immediate Opening: Family Practitioner—River Valley Medical Center is seeking two family practice board eligible/certified physicians for its multispecialty group of 16 physicians in Northwest Wisconsin. Excellent starting salary and comprehensive fringe benefit package the first year with full group membership after one year. Attached to a progressive 90-bed hospital. We are within 45 minutes of the St. Paul/Minneapolis area. Please contact: Dr. Carl Hansen, Recruitment Chairman, or Tom Halverson, Clinic Manager, 208 Adams Street South, St. Croix Falls, Wisconsin 54024; phone (715) 483-3221. (R)

Arizona-based Physician Recruitment firm has opportunities coast to coast. "Professionals working with Professionals." Over 14 years' experience. Call: (602) 795-7474; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252; (602) 990-8080. *(R)

Canterbury Inn Bed & Breakfast: Rochester's unique alternative to hotel living. Victorian charm with modern comforts. Private baths, fireplace, central air conditioning, gourmet or special diet breakfast anytime, "tea-time" (wine, hors d'oeuvres, etc.) daily. Private, off-street parking, three blocks to Mayo Clinic and St. Mary's. A very special place for you, your colleagues, and your patients while in Rochester. $50/single, $60/double. 723 Second Street SE, Rochester, Minnesota 55902; (507) 289-5553. (R)

Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, internal medicine with interest in pulmonary medicine or cardiology, ear/nose/throat, and obstetrics/gynecology. Bemidji Clinic is a 24-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or N.A. Skogerboe, M.D., Medical Director; (218) 751-1280. (R)

Wanted: Family Practitioner—Ob/Gyn Group practice, central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (755), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

OB-GYN needed for busy, modern practice with one female board certified OB-GYN in suburban St. Paul. Extremely flexible hours to accommodate personal lifestyle. Generous benefit package plus liberal vacation time and paid continuing education. Salary first year. Early partnership; (612) 455-3200. (R)

Family Practice, Internal Medicine, and General Surgery positions available at the Faribault Clinic. The Clinic is composed of eight family practitioners, two internists, and a general surgeon. Faribault is a community of 17,000 located 50 miles south of Minneapolis. Contact: Ken Smith, Administrator, Faribault Clinic, 924 NE First Street, Faribault, Minnesota 55021; (507) 334-3921. (R)

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's 13th largest lake. Good hunting and fishing. Modern 9-year-old hospital. Twenty miles to university campus. Call or write: Robert Bosl, M.D., Starbuck Clinic, PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Family Physician/Emergency Room: Full-time salary working weekends, primarily emergency room. Flexibility available. Falls Medical Center, PA, 105 Shorewood Drive, International Falls, Minnesota 56649. Please contact: Douglas A. Johnson, M.D., or A. Mare Gorden, M.D., at (218) 283-9431 for more information. (R)

Orthopedic Surgeon BC/BE 435,000 gross established practice available in multispecialty clinic of 16 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, pathology, and radiology. Other specialties in town are ophthalmology and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy between Kraft, 3M, Pantasote, AMPI, and agri-businesses. Three excellent school systems in addition to a college. Write: Minnesota Medicine (803), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 4-2/87

Family Physician Wanted for 5-physician partnership in northern suburb of the Twin Cities. Competitive salary and benefits. Opportunity to contribute to future direction of the practice. Contact: James Rusin, M.D., East Main Clinic, 850 East Main Street, Anoka, Minnesota 55303; (612) 421-7070. 3-1/87

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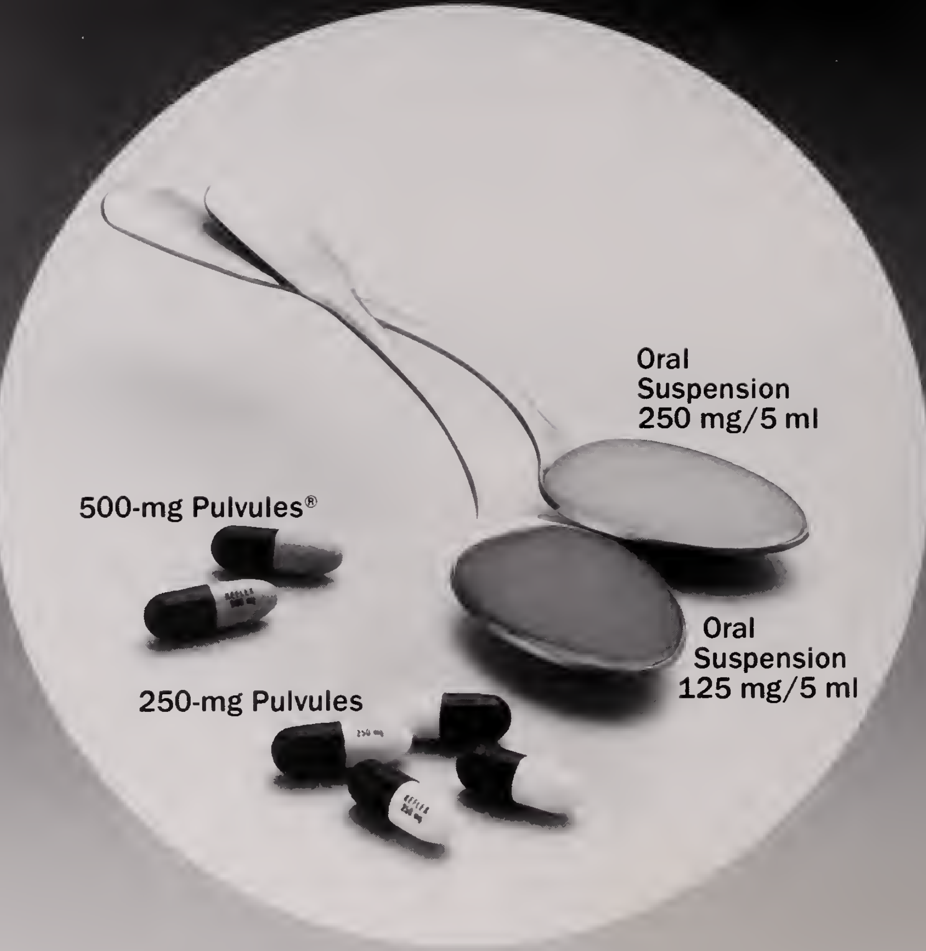

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Family Practitioner and General Internist to join 7-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

Pediatrician: Exciting opportunity to join male and female pediatricians in practice consisting of both primary and consultative pediatrics. Individuals interested in a leadership position to head the Department of Pediatrics, Board Eligible or Certified and with neonatology expertise should apply. Practice is with a 50+ physician multispecialty group located in Minneapolis suburban area (15 minutes from downtown). Interested applicants contact: Tom Behrend, Columbia Park Medical Group, 6200 Shingle Creek Parkway, Suite 480, Brooklyn Center, Minnesota 55430; (612) 560-3450. 3-1/87

OB/GYN: Young female and male seeking a third physician to join us in our busy OB/GYN practice. We are a 54-physician multispecialty clinic in the suburban Minneapolis area. Practice offers utilization of one hospital, full day off during week, and opportunity to chair clinic OB department. Must be Board Certified or Board Eligible. Feel free to contact: Dr. Lori Radke (612) 559-7432 or send CV to: Tom Behrend, Columbia Park Medical Group, 6200 Shingle Creek Parkway, Suite 480, Brooklyn Center, Minnesota 55430; (612) 560-3450. 3-1/87

Internal Medicine: Interstate Medical Center is seeking general internist, BC/BE to join 27-physician multispecialty group. Contact: John Walsh, M.D., Interstate Medical Center, PA, Highway 61 West, Red Wing, Minnesota 55066; (612) 388-3503. 4-2/87

Family Practitioner board certified or eligible to join 11-physician, expanding multispecialty practice in northern Wisconsin. Clinic adjoins JCAH hospital. Rural location with abundant outdoor recreational opportunities, small four-year college. Excellent salary and benefits. Call collect: (715) 532-6651 or send CV with names of references to: Marshfield Clinic - Ladysmith Center, Howard T. Chatterton, M.D., 906 College Avenue West, Ladysmith, Wisconsin 54848. 3-1/87

Suburban FP Group—SHARE affiliate—seeks associate to service rapid practice growth. Competitive salary and benefits. Unique opportunity to establish your practice. Contact: Gloria M. Vierling, Sundance Medical Clinics, Ltd., 323 Naumkeag Street, PO Box 9, Shakopee, Minnesota 55379; (612) 445-6440. (R)

Family Practitioner BC/BE to join group of six board certified family practitioners and a board certified general surgeon. We offer liberal educational and vacation allowances, excellent benefit package, guaranteed minimum salary first six months, with production bonus and membership opportunity. Montevideo is located in west-central Minnesota (population 5,600) with a draw area of 25,000. Our clinic is attached to a modern 35-bed hospital, both new in the late 70s. Please contact: Norman Hagberg, M.D., Montevideo Clinic PA, 908 North 11th Street, Montevideo, Minnesota 56265: (612) 269-6435, or Jim Noble, Administrator, Montevideo Clinic PA, (612) 269-6435. 3-1/87

For Sale—Family practice with or without clinic. County seat community. Excellent school, hospital, nursing home, nursing staff. Clinic—6 exam rooms, X-ray, lab, etc. Will finance and assist in establishing new M.D. Contact: H.A. Knoche, M.D., Gaylord Clinic, Ltd., 315 4th Street, Box 267, Gaylord, Minnesota 55334; (612) 237-2528. 6-4/87

Family Practice: Multispecialty group is seeking 2 family practitioners, BC/BE, to join 2 physicians in our Zumbrota branch office. Generous salary and outstanding fringe benefits. Contact: John Walsh, M.D., Interstate Medical Center, PA, Highway 61 West, Red Wing, Minnesota 55066; (612) 388-3503. 4-2/87

FP/GP Locum Available for Work Lic. Minnesota, Wisconsin, SD, ND, Colorado, Utah, Missouri. Contact: Dr. Olin, 21450 Excelsior Boulevard, Excelsior, Minnesota 55331; (612) 474-1050. (R)

Gaylord Community Hospital is a seeking a family physician to serve its community of 2,000 population. 65-year-old physician retiring, and downtown clinic is for sale. Also have clinic attached to hospital. 32-bed hospital, 58-bed nursing home. Guaranteed fist year salary plus benefits. Contact: Richard Kons, Administrator (612) 237-2905, or write: PO Box 386, Gaylord, Minnesota 55334. 2-1/87, 3/87

Writing Assistance for medical journal articles, patient information brochures, marketing brochures. Ten years of experience in health care writing. Call Elaine Lampert, Freelance Writer (612) 447-5883. (R)

Emergency Medicine: for emergency physician who possesses excellent clinical and trauma skills within a group of 7 Emergency Room physicians. Located in a beautiful northwest Wisconsin area. Position opening July 1987. Please send CV to: Dr. M. Jaghlit, 900 West Clairemont Avenue, Eau Claire, Wisconsin 54701; or call (715) 839-4404. *3-2/87

Emergency Medicine Physician: Ramsey Clinic, a University-affiliated multispecialty clinic located in St. Paul, Minnesota, seeks a board certified or board eligible Emergency Medicine Physician to join our 160-physician group practice. Through our association with St. Paul-Ramsey Medical Center, you will be providing clinical services in a large-volume Emergency Room. Teaching and research opportunities are also available. Salary is commensurate with experience and excellent fringe benefits are offered as part of this opportunity. For further information and confidential consideration, send your CV in confidence to: Wayne F. Hass, M.D., Associate Chief, Department of Emergency Medicine, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101. An Equal Opportunity Employer. *2-1/87

Excellent Opportunities for Otorhinolaryngologist, Psychiatrist, Endocrinologist, Radiologist, Orthopedist, and General/Family Practitioner. Excellent opportunity for physicians in Los Angeles suburb to join 80-member multispecialty medical group. Large fee-for-service and prepaid practice, no Medi-Cal. Excellent compensation program based on guarantee plus incentive, profit sharing, and pension plan. Group provides health, dental, life, and malpractice. Partnership in real estate and medical corporation available. See our Ad in this publication. Send CV to: Wm. Shaw, Associate Administrator, Mullikin Medical Center, 17821 South Pioneer Boulevard, Artesia, California 90701. 1-1/87

Luxury house for rent in Aspen, Colorado 4BR, 2 1/2 bath, located within minutes of five ski areas; on private lot overlooking Roaring Fork River, exceptionally furnished with all amenities —stereo, color TV, hot tub, fire places, etc. Contact: Dick Huffman at (612) 546-1555. 2-1/87

Board Certified Internist, Oncologist, or Gastroenteriologist (willing to do General Internal Medicine) to join expanding group of Internists with offices in downtown Minneapolis and western suburb. Excellent benefits and earning potential. Opportunity to work with young academically motivated group. Please contact: Dr. R.W. Kaufman or Dr. J.P. Kieley; (612) 339-7171. (R)

Innovative? Independent? Family Practice position (Board Eligible) available with a well-established practice of over 30 years. Including pediatrics, adult medicine, hospital care, providing personal care close to North Memorial Medical Center. We are looking for a physician with strong interests in women's health care to complement new programs in wellness, mental health, physical therapy, and senior programs. Obstetrics is optional, hours flexible. Early partnership available. For further information please contact: Harry S. Krulewitch, M.D., 5840 North Lilac Drive, Brooklyn Center, Minnesota 55430; (612) 561-2520. 3-2/87

Family Practitioner/WI: BC/BE to join 23-physician multispecialty group. Progressive hospital equipped with CT scanner. Service population of 60,000-80,000. University community. Reply: Administrator, 2501 Main Street, Stevens Point, Wisconsin 54481; or call Collect (715) 344-4120. 3-2/87

Pediatrician: Excellent opportunity to join four pediatricians in a very active practice. Growing community, excellent hospital with teaching opportunities available. Close to Milwaukee. Contact: John R. Gay, M.D., 1111 Delafield Street, Waukesha, Wisconsin 53188; (414) 542-2536. 3-2/87

General Surgeon: Chisago Health Services is seeking a board certified surgeon to join its 13 physicians. CHS operates Medical Centers in Chisago City, Wyoming, and North Branch and the Chisago Lakes Hospital. The Chisago Lakes area is currently located 35 miles northeast of the Twin Cities. Excellent salary and benefits. Contact: Scott Wordelman, President, Chisago Health Services, Chisago City, Minnesota 55013. (612) 257-2500. 4-3/87

General Internist: Marshfield Clinic, one of the nation's largest multispecialty private groups, is seeking several board certified/board eligible General Internal Medicine specialists to join its expanding 18-member section. Internal medicine residency program, University affiliation, research foundation, and large regional referral base contribute to a very stimulating environment. Unique big-city medicine opportunity in a family-oriented rural setting. Please send CV to: John P. Folz, Director, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449 or call collect (715) 387-5181. 3-2/87

Growing West Suburban Lake Minnetonka Clinic adding one full-time Internal Medicine Physician. Multispecialty: Family Practice, Pediatrics, Surgery, Urology, Optometry, Internal Medicine, OB/GYN, Orthopedics, Ophthalmology. 19-physician clinic, three offices. Quiet, rural area allowing easy access to downtown Minneapolis. Immediate interviewing. Forward CV to: Mound Clinic, Ltd., 2200 Commerce Boulevard, Mound, Minnesota 55364, Attn: Diane Theis; (612) 472-1144. 2-1/87

Excellent Opportunity for Physician in established Industrial Medicine Clinic in southeastern metropolitan area. Practice is supported through contracts that have been developed with many local businesses and industries. Income guarantee provided. Office staff and marketing assistance in place. Resumes should be sent to: Employee Health Systems, Personnel, c/o 724 19th Avenue North, South St. Paul, Minnesota 55075. 1-1/87

The University of Minnesota School of Dentistry invites applications for Research Fellow (D.D.S required) and Research Associate (Ph.D. required) positions. Applicants must have at least two years of research training. Positions will provide research expertise in planning and execution of research design and methodology. The University of Minnesota is an equal opportunity educator and employer and specifically invites and encourages applications from women and minorities. Send resume, indicating areas of research training to: Dean Richard P. Elzay, University of Minnesota School of Dentistry, 515 Delaware Street SE, Minneapolis, Minnesota 55455. 1-1/87

Telemark Cancer Conference February 4-6, 1987. Location: Telemark Lodge, Cable, Wisconsin. Further information: Marshfield Clinic's Medical Education Office, 1000 North Oak Avenue, Marshfield, Wisconsin 54449; (715) 387-5207. 1-1/87

11th Annual Winter Pediatric Seminar: February 12-13, 1987. Location: Powderhorn Lodge, Bessemer, Michigan. Further information: Marshfield Clinic's Medical Education Office, 1000 North Oak Avenue, Marshfield, Wisconsin 54449; (715) 387-9207. 2-2/87

Enhance Communications with patients and your community through professionally prepared newsletters, brochures, ads, video scripts. Writing, design, and production personalized for your practice. Contact: My Word! Communications, 37 Arthur Avenue SE, Minneapolis, Minnesota 55414; (612) 378-9680. 1-1/87

Suburban Pediatric Group has opportunity for board certified or eligible pediatrician. Subspecialty interest in allergy helpful. Busy, diverse practice with good compensation and fringe benefit package. Contact Gene Inett, Administrator, Metropolitan Pediatric Specialists, PA, 416 Southdale Medical Building, Edina, Minnesota 55435; (612) 920-9191. 3-3/87

Attractive New Office in Golden Valley near Highways 55 and 100 available for sublease 1½ days a week or more, depending on type of practice. Fully equipped lab and procedure room, 3 exam rooms, large waiting room with balconies leading to adjacent pond. Currently occupied by solo Ob/Gyn. Call (612) 544-9935. 3-3/87

Family Practice BC/BE for multispecialty clinic of 16 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, pathology, and radiology. Other specialties in town are ophthalmology and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy among Kraft, 3M, Pantasote, AMPI, and agri businesses. Three excellent school systems in addition to a college. Contact: Harold Fenske at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota; (507) 354-4101. 4-4/87

Cincinnati, Ohio: physician to take over a well established solo practice in a beautiful small community that is only 30 minutes from downtown Cincinnati. Sale price is favorable and the doctor will stay to introduce to the patients. The office has an excellent location in a beautiful restored old home. There is a minimal amount of obstetrics and pediatrics and may be attractive to an internist. Doctor retiring soon. Contact: G.T. Bowen, M.D., (812) 537-4888. 1-1/87

Internist: Excellent opportunity to join busy, growing practice including established Internist close to the Minneapolis-St. Paul area. This successful satellite of Ramsey Clinic, a University-affiliated 170 physician multispecialty group in St. Paul, Minnesota, combines a unique rural practice setting adjacent to an excellent community hospital with multiple teaching opportunities. Easy access to major city cultural opportunities and outdoor activities. Attractive salary and benefits package. Send CV to: David J. Mersy, M.D., Satellite Medical Director, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101. *1-1/87

Psychiatrist, Medical Director, Staff Physician positions available at Moose Lake Regional Treatment Center. A 500-bed facility serving mentally ill, mentally retarded, chemically dependent, and psychogeriatric clients. Excellent opportunity for program development and clinical care as part of a skilled and caring team serving these handicapped. Located in a progressive and recreational setting 100 miles north of the Twin Cities and 45 miles south of Duluth. Excellent salary and fringe benefits. Contact: D. Fox, M.D., Moose Lake, RTC, Moose Lake, Minnesota 55767; (218) 485-4411. 1-1/87

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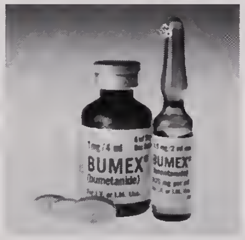

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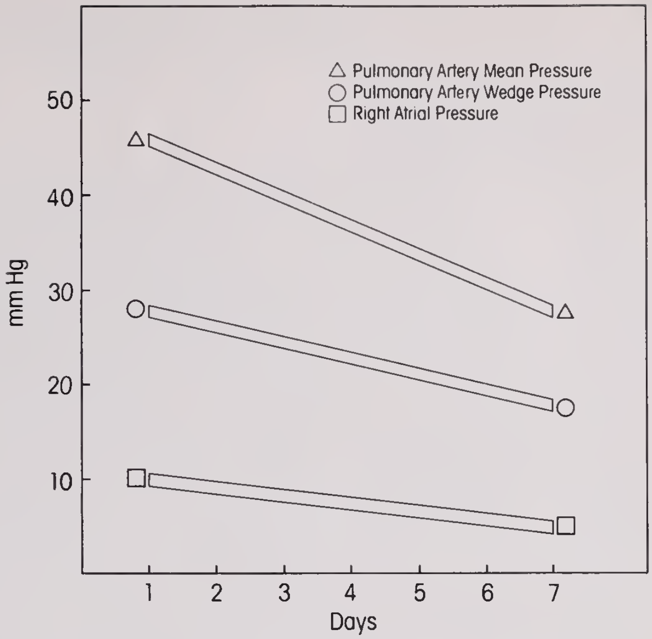

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References: **1.** Olesen KH, *et al Postgrad Med J 51*(Suppl 6) 54-63, 1975 **2.** Handler B, Dhingra RC, Rosen KM *J Clin Pharmacol 21* 706-711, Nov-Dec 1981 **3.** Brater DC, *et al Clin Pharmacol Ther 34* 207-213, Aug 1983 **4.** Brater DC, Fax WR, Chennavasin P *J Clin Pharmacol 21* 599-603, Nov-Dec 1981 **5.** Davies DL, *et al Clin Pharmacol Ther 15* 141-155, Feb 1974

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WARNINGS: Dose should be adjusted to patient's needs Excessive doses or too frequent administration can lead to profound water loss, electrolyte depletion, dehydration, reduction in blood volume and circulatory collapse with the possibility of vascular thrombosis and embolism, particularly in elderly patients.
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In patients with hepatic cirrhosis and ascites, sudden alterations of electrolyte balance may precipitate hepatic encephalopathy and coma Treatment in such patients is best initiated in the hospital with small doses and careful monitoring of the patient's clinical status and electrolyte balance Supplemental potassium and/or spironolactone may prevent hypokalemia and metabolic alkalosis in these patients
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Patients allergic to sulfonamides may show hypersensitivity to Bumex
PRECAUTIONS: Measure serum potassium periodically and add potassium supplements or potassium-sparing diuretics, if necessary Periodic determinations of other electrolytes are advised in patients treated with high doses or for prolonged periods, particularly in those on low salt diets Hyperuricemia may occur Reversible elevations of the BUN and creatinine may occur, especially with dehydration and in patients with renal insufficiency Bumex may increase urinary calcium excretion.
Possibility of effect on glucose metabolism exists Periodic determinations of blood sugar should be done, particularly in patients with diabetes or suspected latent diabetes
Patients should be observed regularly for possible occurrence of blood dyscrasias, liver damage or idiosyncratic reactions
Especially in presence of impaired renal function, use of parenterally administered Bumex should be avoided in patients to whom aminoglycoside antibiotics are also being given, except in life-threatening conditions
Drugs with nephrotoxic potential and bumetanide should not be administered simultaneously
Since lithium reduces renal clearance and adds a high risk of lithium toxicity, it should not be given with diuretics
Probenecid should not be administered concurrently with Bumex
Concurrent therapy with indomethacin not recommended
Bumex may potentiate the effects of antihypertensive drugs, necessitating reduction in dosage
Interaction studies in humans have shown no effect on digoxin blood levels
Interaction studies in humans have shown Bumex to have no effect on warfarin metabolism or on plasma prothrombin activity
Pregnancy Bumex should be given to a pregnant woman only if the potential benefit justifies the potential risk to the fetus
Bumetanide may be excreted in breast milk
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ADVERSE REACTIONS: Muscle cramps, dizziness, hypotension, headache and nausea, and encephalopathy (in patients with preexisting liver disease)
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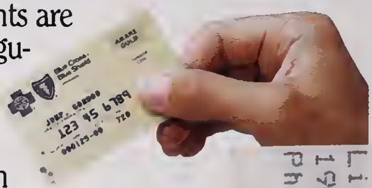

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Hospital ethics committees
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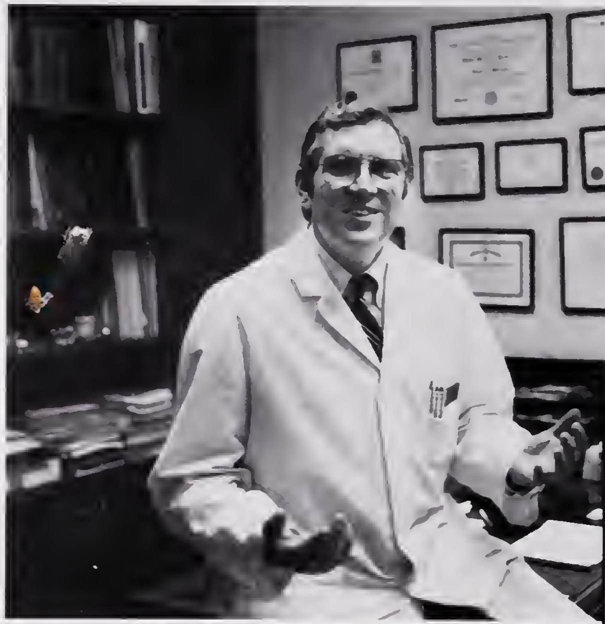

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Editor's Note

Dr. L. A. Whitesell's name was inadvertently omitted from the list of members of the MMA's Task Force on Rural Health in the January issue of *Minnesota Medicine.*

Dr. Whitesell, of Buffalo, served as liaison to the MMA Committee on Legislation and is the MMA's president-elect.

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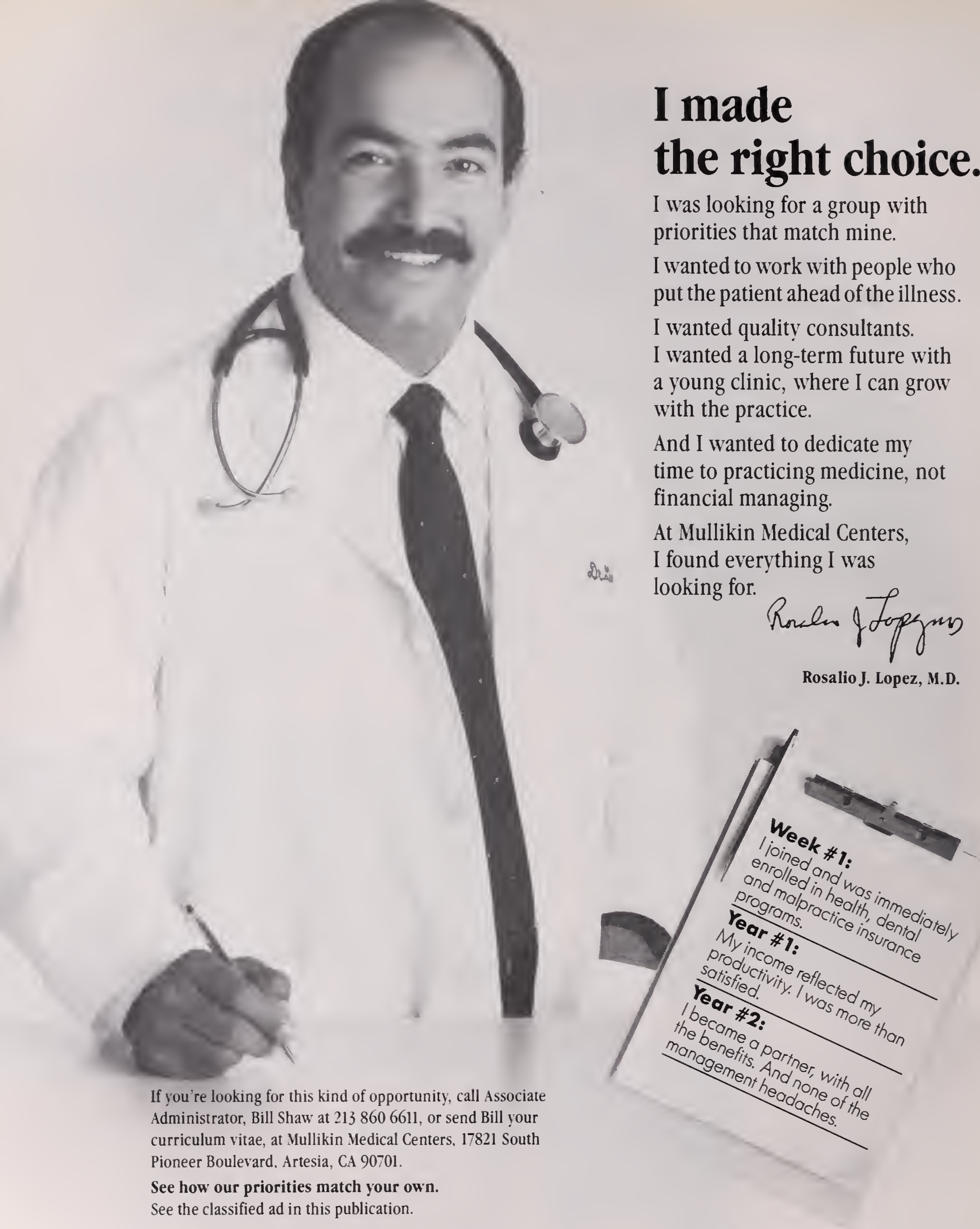
Cover Photograph

Tasman Glacier

Fereydoon S. Mahjouri, M.D., took the cover photograph of Tasman Glacier, Mt. Cook, New Zealand, while on a recent mountain expedition. Mt. Cook, the highest peak in the southern hemisphere, is known for its treacherous glaciers and everchanging climate.

Dr. Fereydoon is a Minneapolis plastic surgeon and is internationally active in wilderness and extreme skiing.



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president's letter

Is Physician Contentment Gone Forever?

James F. Knapp, M.D.

Surveys show that M.D.s uniformly long for three medical practice conditions: maximum independence, maximum income, and minimum risk.

Surveys also show that M.D.s continue to be frustrated by medical practice conditions. At least half of all physicians feel they have lost control. They are convinced that government, with its bureaucracy and regulations; third-party payers; health plans; hospital administration; and consumers are now firmly in command of the health care system in the United States. These doctors feel they have lost the power to choose how they will practice medicine, to set their own fees, and to command reimbursement to their liking.

What about the other half? For the sake of argument, we'll assume they still feel in control. Perhaps they aren't, but at least they seem to feel better about their practice situation. Maybe that difference is only one of perception.

The growth of group practices has influenced the development of these contrasting attitudes. AMA and MMA surveys show this is the fastest growing form of medical practice in the United States and that these M.D.s tend to be more content with their degree of medical practice control. Based on my own practice experience, I can identify with these physicians. In the past 13 years, my group, through merger with both larger and smaller groups, has grown from six primary care M.D.s in one location to 175 M.D.s, covering all the medical specialties, practicing in 22 locations along the Minnesota-North Dakota border. In this period, my own practice has grown and my income has risen substantially. *More important*, my ability to deliver health care services has improved with our two mergers. This is because our economic arrangement permits our group to install the latest technology, where needed, and because my many new specialist partners are very willing to consult on my patients on a very timely visiting schedule.

Providing appropriate medical care certainly contributes to a feeling of contentment, but it goes beyond that. Like all medical groups, mine is affected by unfavorable rules and regulations, one-sided negotiations with third-party payers, and unrealistic expectations of patients. But we perhaps feel less distressed because our system reduces their impact; strength in numbers allows us to negotiate options that would not be otherwise available. Our sense of control may be only a delusion or may prove to be transient, but for now we feel good about it.

Do I offer group practice as a panacea for correcting the malaise many feel? No. Health care is a pluralistic system, and a wide variety of practice situations will continue to best serve doctors and their patients. Merger or affiliation into a larger group practice is just one option.

Following is an interview *Minnesota Medicine's* editor-in-chief Richard L. Reece, M.D., conducted with W. Eugene Mayberry of Mayo Clinic, where contentment and good medicine seem to be thriving. From the other side of the fence, family practitioner John E. Smith relates how the modernization of medicine can disrupt a physician's comfort and contentment.

If your practice situation is not all that you would like it to be, perhaps MMA can help. Our Minnesota Medical Services Corporation offers expert practice management services through consultants who can help you sort through your practice options. Use MMA as a resource to help you feel good about your medical practice.

James F. Knapp MD

James F. Knapp, M.D., President
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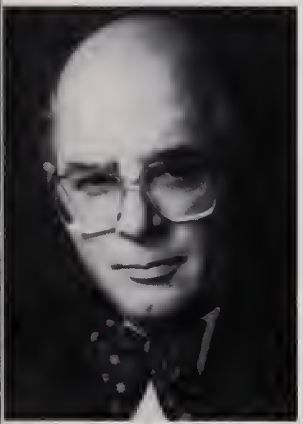
editor's notebook

The Corporate Transformation of Medicine in Minnesota:

Mayo Diversifies into a National System— An Interview with W. Eugene Mayberry, Chairman of the Board of Directors, Mayo Clinic

Twenty-second in a series

> "Control of medicine will never again belong completely to physicians. If that is the case, physicians should decide what parts of the system are important to them, what parts they would prefer to control in the future. They should look around to determine where doctors have been particularly successful in working out viable arrangements with management. A good example of successful accommodation—where physicians have remained in charge of what is important to them—is the Mayo Clinic in Rochester, Minnesota . . . Mayo physicians still believe they command what is important to them. They don't feel that someone is trying to tell them how to practice medicine."
>
> Victor Fuchs, "The Battle for Control of Health Care,"
> *Health Affairs*, 1:5-13, 1982.


Richard L. Reece, M.D.

I admire the Mayo Clinic. Like a Swiss hotel, or any superb service organization, it succeeds because of the culture of its staff—its attention to detail, and its dedication to what's best for the client—the patient. Mayo is also a special place because physicians submerge their egos and their incomes to work for the good of the organization and the patient. Seasoned executives salivate when they view its gestalt—well-oiled machinery that processes 1,000 satisfied customers a day.

To some, Mayo has an almost Orwellian unreality—1,200 identical examining rooms in one building wired together to one chart, with each room the same size, with the same equipment, arranged in the same way, with similarly dressed doctors meshed together by similar medical education, similar incomes, similar goals, and overlapping committees and isolated by cold and distance from the heterogeneity of the outside world.

Is this inner world transportable to other parts of the United States? Based on this interview with Dr. Eugene Mayberry, a solid spokesman for the Mayo tradition, my bets ride on Mayo.

REECE: Dr. Mayberry, how long have you been at the Mayo Clinic?

MAYBERRY: I've been here since 1956, 30 years. I did my residency here in internal medicine from 1956 to 1959. In 1959, I was in Boston as an endocrinology fellow. I returned in 1960 to practice internal medicine and endocrinology. In 1962, I went away to the National Institutes of Health to do research at the Arthritis Institute. I came back to Mayo in 1964 to do part-time clinical practice and part-time research and gradually moved into full-time research. In the late '60s, I became interested in thyroid function tests and diagnostic laboratories problems. When our department of laboratory medicine was formed in 1971, I became its first chairman. Then I became absorbed in institutional administration through committee assignments. I became a member of the Board of Governors in 1971 and became chairman of the board in 1976.

REECE: You've seen profound changes occur these last ten years?

MAYBERRY: Yes, the world has changed greatly. Medicine has changed more than the rest of the world. I've seen changes in the world of medicine and changes in the Mayo Clinic.

REECE: Describe these changes.

MAYBERRY: Over the last ten years, we've seen increasing horizontal integration of hospitals. Medicine has grown as a service industry. More clinic groups are getting together; subspecialty groups and multispecialty groups are growing larger.

In the last five years, large, national horizontally integrated chains have begun to integrate vertically, adding such activities as pharmaceutical, surgical supply, and laboratory industries to the practice of medicine. Probably the biggest change for medicine has been the increasing evolution or revolution, if you will, of prospective payment systems, which have an enormous implication for the movement of patients across boundaries and across system lines. DRGs and Medicare have forced physicians to change their hospital practice in ways that affect all patients.

Institutions' need for large sums of capital is another change that will greatly affect institutions and individuals. I think the prospective payment systems are tending to rachet down medical care in ways that haven't significantly affected the quality of care yet. But it's only a matter of time until that happens. All of this portends problems and increasing regulation by the federal government and third-party payers. What I'm painting is not a bright picture for medicine. On the other hand, change keeps us all young and active and interested. With great change comes great opportunities for those individuals and institutions poised to take advantage of them.

REECE: The October 3 *Wall Street Journal* says that the Mayo Clinic has positioned itself as the forerunner of physician-led organizations. You feel that physician leadership is terribly important, I gather from the article.

MAYBERRY: It's important. Physicians have a perspective and a background that best positions them to play the leadership role in medicine.

Yet, physicians are playing an increasingly lesser role, and business has picked up the gauntlet. The physician's role in hospital systems and institutions prior to World War II was significant. Hospital administrators and physicians had management roles in a variety of organizations. But after World War II, physicians found the action to be in subspecialty medicine. They looked down a bit on those people who were in administrative roles among their kind. Physicians who were very competent became super subspecialists. That trend led physicians out of administration. Now, as we've become oversupplied in the subspecialties, physicians are turning again to administration. They're rediscovering their traditional roles in administration and management.

REECE: I agree. In the Twin Cities at least, I've noticed we've gone through this phase of trying to diversify out of hospitals, of marketing, of peripheral activities, of image enhancing. Now we seem to be returning to the fundamentals, with physicians as the core of the enterprise.

MAYBERRY: It's going to be good for medicine. Physicians have an expertise to offer that none of the other specialties in administration of medicine can bring to bear.

REECE: You also seem to feel that a physician-directed, corporate-run, fee-for-service organization has a strong position in the new world of competitive medicine.

MAYBERRY: We thought Mayo had the best opportunity to form a physician-directed national program model. That led us into what we have termed our diversification effort, which started about 1982. Not many clinics are in the position to branch out as we have.

REECE: As I see it, you made several strategic moves. One was to plan to diversify into the Sun Belt—into Jacksonville and Scottsdale. Also, you started the *Mayo Clinic Health Letter* for patients and the *Mayo Update* for physicians. You acquired other laboratories around the country. Are these moves all part of your conscious decision to diversify five years ago?

MAYBERRY: Yes, they are. We saw that the population of the Upper Midwest was going to remain stable. We saw the enormous growth in the Sun Belt areas. We said, "What should Mayo do?" Should we assume that the world is always going to beat a path to our door if we maintain the high quality here and if we offer the diversity of programs we've had traditionally? That would be a fairly safe assumption for a period of time, but the time was limited.

Another scenario we debated was "Should we pull inward a bit more and try to concentrate on our education and research programs, let our practice programs decline, and become a more traditional academic model?" We also thought about building one other Mayo-Clinic kind of facility in one of the Sun Belt locations.

Or, finally, we asked, "Should we try to diversify in a variety of spheres?" We decided on the latter. The Mayo group practice division elected to first move to Jacksonville and Scottsdale. We have plans for other satellites if those two are successful. We started Mayo Medical Ventures to protect our patents and to develop other staff ideas to form limited partnerships, and to engage in other money-making business activities to support our programs and education and research. We're just getting started.

REECE: I gather you have two large audiences out there. Eighty percent of the patients are self-referred, but the 20% referred by physicians are also very important to you, so you are simultaneously marketing to both audiences.

MAYBERRY: We've worked hard to maintain a good relationship with the physicians in our region in a variety of ways. Probably the best way we can relate to these physicians is by communicating well with them when they refer patients to us. We get back to them by phone and by letter as promptly as possible; we work with them as colleagues and associates; and we refer their patients back to them as quickly as we can.

REECE: I look at this interview, frankly, as a way for you to communicate directly with the 8,000 physician readers of *Minnesota Medicine*. I understand 85% of your current patient base comes from the Upper Midwest.

MAYBERRY: That's right. About 80% of our patients come from the five-state Upper Midwest. This region is obviously very important to us. Minnesota is very important to us. The farther we get away from Rochester, Minnesota, the fewer patients we have. Some people are surprised that only 20% of our patients come from outside of this region. But most national centers see patients from a 100- to 200-mile radius. We probably have the largest national and international practice in the world of medical referral systems.

REECE: Many health care analysts have commented admiringly about the efficiencies of the Mayo Clinic, the emphasis on out-patient surgery, the intimate relationships of your consultants with each other, your low hospitalization rate. You're considered a model of efficiency. You must have taken these factors into account when you migrated south. You have to feel you can compete very well in warmer climates.

MAYBERRY: We do. We feel we can compete economically on the basis of our efficiency. Interestingly, the person who most influenced our systems was a physician—and *not* one of our recent physicians.

REECE: Plummer?

MAYBERRY: Yes, Henry Plummer.

REECE: I read the book, *Henry Plummer: A Diversified Genius*. He came up with the idea of the unitary patient chart; he put in your first record system; he designed many of your buildings and your heating system; he was the first physician-systems analyst in the country.

MAYBERRY: He was a genius. I wish I'd known him. Virtually every room in this building is pretty much the same size, the size that Henry Plummer laid out in 1914. The position of the wash basin, the position of the examining table, the design of the examining table, the sofa that sits by the desk that the physician uses, the dressing cubicle, the record system—Henry Plummer laid it all out. We refined and honed many of his ideas, but we haven't added a lot to them.

REECE: Somehow, you've imbued your physicians with the "Mayo culture." This indoctrination and socialization process is a mystery to many people. Could you comment?

MAYBERRY: The Mayos themselves played the most important factor in originating the Mayo culture. The early staff and physicians and the sisters of St. Francis working together as partners, evolved the Mayo ideals and goals—the way we treat each other and the way we treat patients.

REECE: Your decision-making process here has been compared to the Japanese. To wit: you spend a lot of time and a lot of debate reaching a decision, but once it's made, it's one of consensus and commitment. Events move amazingly fast after that. Is that an apt analogy?

MAYBERRY: I think so. It's not the most efficient system, but consensus is the glue that has held us together through the years. Physicians traditionally have not been the easiest group to manage. They are rugged individualists, yet they all like to feel that they are part of management, and indeed, they are. All of us at Mayo are employees, but we operate the institution as though we are all partners.

At any one time about one-third of our staff is involved in institutional committees and another third in interdepartmental division administration and committees. Those committees turn over about every two years. Our administrative appointments turn over every five to ten years, so we truly involve everybody in the process.

REECE: You're noted for your quality and the way you systemized the processing of 1,000 patients a day. Yet I never hear much about your mechanisms to assure quality, what your criteria are for physician hiring and firing. What you do, you do quietly, effectively, and with good results. Are there formal procedures?

MAYBERRY: The major way that we ensure quality at Mayo is through training our own physicians. About 80% of our physicians are trained at Mayo. Inbreeding is supposed to be bad, but in-breeding itself is neither bad nor good. We like to train our physicians here at Mayo because we can ensure the quality of training and uniformity of approach.

We know the individuals who join our staff because most of them have been here from four to eight years in training. We've had a good chance to look at them carefully. Then, if they've trained here, we often send them away for awhile to get additional experience in another location.

Through our cross-consultations and our group practice system, we make sure most patients see more than one physician. Physicians here oversee each other all the time. We also have extensive continuing education programs as well as educational programs for residents and medical students to help ensure quality. We have extensive systems through which the students critique the faculty. We have a lenient educational trip policy for physicians to attend other meetings and other activities outside the institution.

REECE: You also insist on certain standards of excellence. For example, you send speeches and articles through your editorial department, and the product has a sort of homogenized excellence.

MAYBERRY: Yes, we try to meet certain standards. We maintain our image. For instance, we have a dress code that the Mayos set for physicians a long time ago. You wear a coat and tie. You don't wear a white lab coat or a physician's gown; you dress as a business person, and that's the way you conduct your affairs. We have a dress code for the floor medical employees as well. We try to maintain not only the high quality of facilities but the high quality of maintenance of those facilities.

REECE: Let's talk about maintaining those standards as you expand to Jacksonville and Phoenix. I read that you're sending your senior physicians, 35 of them, to each of those places and they can communicate with ease back to Mother Mayo. You must have thought these communications through carefully. How are you going to maintain the standards as you grow? You must have a plan to keep your image bright.

MAYBERRY: Right. We've thought a lot about it; we've worried about it. We're going to do it several ways; many you've already pointed out. We have 42 physicians in Jacksonville; we'll have 45 physicians when we open in Scottsdale. Most of them will be senior and all will be Mayo-trained. All the supervisors will come from Mayo Clinic, Rochester. All the senior supervisory personnel for clerical, technical, radiology, maintenance—the whole thing—will come from here.

We will have an invisible telephone system. If I want to call my colleague in the office next door, I dial a five-digit number that has a prefix of four. If I want to dial Dr. Cody in Jacksonville, I dial a five-digit number with a prefix of three. If I want to dial a colleague in St. Mary's, I use a prefix of five, and so on. The telephone is designed to make interaction between Rochester and Jacksonville just as easy as interacting here at home.

We also installed a two-way video communication system with a satellite transponder that allows us to communicate five hours a day with Jacksonville and with Scottsdale when it opens. We use that system for continuing education and consultation. We will use it for committee meetings and our annual staff meeting.

We'll travel extensively back and forth, and we'll have system-wide committees in the Mayo style. Our medical industry relations committee will have people from Rochester, Jacksonville, and Scottsdale.

REECE: You have a $27 million facility in Jacksonville. You're going to be doing surgeries at St. Luke's Hospital in Jacksonville. Surely some patients will have to be transported back to Rochester for more extended, sophisticated treatment?

MAYBERRY: There will be, and not all of those patients will want to come. If we don't have the facilities or the specialties at Jacksonville, we'll refer some patients into the community there. Of course we'll give them the first opportunity to come here. Also, some patients are coming up to Rochester from Jacksonville because the clinic is so swamped down there.

REECE: Let's talk about the swamp phenomenon. I was reading that you're booked six to nine months ahead in Jacksonville, that you have a four-story building that can be built to 14 stories, and that there may be additional plans for another 21-story building. In square footage at least, your Jacksonville space could be as large as the Mayo Clinic in Rochester within ten years.

MAYBERRY: I don't think it will be that large in ten years, but it will be much larger than it is today. Eventually it could rival Rochester in terms of patients.

REECE: Your recent historic growth rate in Rochester has been 1-2% per year. Your growth rate in the Sun Belt is going to be faster, and you'll want to harness that growth in an orderly way. Could this fast growth disrupt the Mayo style?

MAYBERRY: It is a concern. Over the last 15 years, we've grown at a rate in Rochester about 5-6% compounded annually. In the last three years we've made a conscious effort to reduce that to 1-2%. We're now using those resources to grow in other locations.

As we talked about our diversification effort, we debated, "Is the Mayo Clinic in Rochester, Minnesota, or is the Mayo Clinic a concept and system of service?"

If you think Rochester, Minnesota, is the Mayo Clinic, then of course this diversified program makes no sense. If you decide the Mayo Clinic is a concept of service and a system of service, then you can provide that service in any number of other locations.

REECE: It's not a geographic aberration; it's a universal idea?

MAYBERRY: We hope so. We have yet to prove it but that's the idea.

One of the other important aspects of our diversification effort has been our merger with our two affiliated hospitals, St. Mary's and Rochester. We neither owned nor operated them over the last almost 100 years, but we fully staffed them and provided all the physician services for those hospitals.

REECE: Somehow at Mayo you have pulled off the incredible feat of making the businessmen and the physicians feel like peers. Businessmen do what is important to them and doctors do what is important to them. It's a collegial culture, is it not?

MAYBERRY: It truly is. There's more of an adversarial relationship in most hospitals and group practices. We have a collegial atmosphere here that goes back again to the Mayos. As they were evolving subspecialty group practices in 1904, they recognized the need for better business practices. They hired Harry Harwick, who was very much a full partner with the other physicians. That set the stage for the relationship of the business practices and the medical practices. The Mayos recognized the need for subspecialty partners; they also recognized the need for subspecialty *business* practices as being a part of it, and that was very farsighted at the time. It set us apart from hospitals and other clinics at an early age.

REECE: As we pass through this corporate transformation of medicine, you hear physicians' revulsion toward "bottom-line medicine," yet you don't seem to have that mentality around here. You seem to understand that profit is an important ingredient in financing research, in marketing the organization, and making the whole thing go.

MAYBERRY: We traditionally had to rely on our own resources. You don't want to think about the bottom line to the exclusion of other facets, but it's very important. You have to have enough resources to do the things you want to do.

REECE: You seem to pay quite a bit of attention to the accumulation of capital to finance future efforts, such as contributions from patients.

MAYBERRY: It wasn't until 1958 that we sought federal money for research. Until that time, we'd felt we were a private institution, and that private institutions ought to go their own way and should not accept federal money if they didn't want to be controlled. We gingerly got into the business of the grant solicitation in 1958; nothing terrible happened, and we now have extensive experience in seeking NIH funding. This year, $42 million of our $60 million research budget will come from the National Institutes of Health—a testimony to the way our research staff has competed for the national dollar.

In 1970 we first looked for gifts to start another graduate medical school and to continue to expand our research programs. We decided we had to look increasingly to philanthropy. To date, we have raised about $180 million to underpin our education and research programs through donations and gifts, bequests, grateful patients, and foundations.

REECE: What are your total revenues now?

MAYBERRY: We have $500 million from all sources now, and our merged institutions are approaching $700 million.

REECE: With that capital and the skilled management team nurtured over the last 80 years or so, what do you see the direction of Mayo? What do you think the medical landscape will look like five years from now?

MAYBERRY: Well, last year was a superb year for us in all respects. This year is the best year we've ever had by far in terms of financial resources and our programs. I predict both Jacksonville and Scottsdale will be very successful. We'll start in two to three other locations and we'll see hospitals built on-site next to each of those locations. We'll see evolving educational programs that include clinical research right from the very beginning.

All the while, Rochester will be growing very slowly, just enough to allow us to add new programs without eliminating existing activities. We'll encounter problems during that time; without problems, there can't be successes. I see Mayo putting together a national system of health care—not one of the bigger ones, but it will be the model for high-quality care.

REECE: Do you think that with all the competitive turmoil out there, patients are fleeing to quality?

MAYBERRY: It's really going to come down to quality in the future. And that's the niche that Mayo has always had. The whole world is going to change; quality is going to be of greater concern—of greater importance than it has been in 20 years.

REECE: You're known for a consistent quality, a *known* brand name quality with no surprises. Are you excited about the future?

MAYBERRY: The Mayo Clinic today is the most exciting medical institution anywhere. It has a vitality and a forward-looking approach that's going to serve it very well in years ahead.

Richard L Reece MD

Richard L. Reece, M.D.
Editor-in-Chief

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perspectives

Modern Medicine

John E. Smith, M.D.[*]

"Medicine is a musical instrument of much and exquisite workmanship, but easily put out of tune."

Francis Bacon (1561-1626)

"Hi, I'm Jack and I'm going to be your doctor for today."

The PHP ad poking fun at the transient nature of the doctor-patient relationship practiced by their competition is a sample of modern medicine for the rest of us also. It is one of the things that has put medicine out of tune. These days even satisfied, long-standing patients switch doctors to save a few dollars or because their employer is offering a different plan for this year. Great masses of patients are being sold to the lowest bidder. Millions of advertising dollars are being spent to lure those individuals who still have a choice to one particular plan or another. Even solo physicians need some sort of a group tie-in to keep their negative patient transfer balance from showing up in their appointment books.

An Honored Profession

"Profession" used to be synonymous with "vocation," from the French "Vocare," to call. A person was called by God to be a prophet, priest, prince, or a professional. To be called was to be singled out for a particular task, and it carried with it a profound obligation. In medicine the obligation was to put the welfare of the patient before your own. No one can do that all of the time, but so many doctors have done it so much of the time that medicine remains an honored profession.

There are four elements that differentiate a profession from a trade — things that used to separate a physician from a vendor. They are:

- selectivity — limited membership with credentialing standards determined by the profession,
- altruism — the obligation to care for all people, regardless of their ability to pay,
- autonomy — an accountability only to ourselves and to our patients, and
- exclusivity — only doctors provide medical care.

In the 27 years I have been in practice, I have watched the fading of these four hallmarks of a profession. Today, with offshore schools, FMGs and third pathways, there is no real selectivity. With near universal third-party coverage, few physicians think of free care in any terms except that of a bad debt. Autonomy is long gone; we spend more of our time satisfying the carriers and less and less time with our patients. Already there is an abundance of doctor surrogates: nurse practitioners, physician assistants, chiropractors, optometrists, dietitians, psychologists, midwives, and therapists doing many of the things that only a physician used to do. There isn't anything I do that you couldn't train someone else to do. They may be unable to integrate the parts, but my day is made up of bits and pieces of things that require time, compassion, and compulsion rather than cerebration. The procedure may be called "assessment and therapy" rather than "diagnosis and treatment," but the difference lies in the outcome rather than in the process.

Too Many Doctors

There are too many doctors and doctors' helpers already, and the future promises an increasing surplus with more competition for fewer patients. As more physicians and surrogates try to make a living from a relatively constant payment stream, future physicians are assured sharply reduced real incomes compared to today's. In fact, the process has already started. AMA figures show a decline in average income of family doctors from $71,900 to $68,500 since 1983. A drop of almost 5% coupled with a cost of living increase of over 4% means that in real terms our average income fell almost 10%.

Fierce competition was also the norm 60 years ago. In those days of depression there were too many doctors only because no one could afford to pay the doctor anything. Patients were scarce enough so that doctors became very possessive of their few paying patients. Physical battles and the more common mean-spirited lack of cooperation are a part of the history of those times.

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[*] Dr. Smith is in family practice in Minneapolis and is a member of the Board of Editors of *Minnesota Medicine*.

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Housecalls

Housecalls, too, are changing. The commonest call used to be for a crying child with a middle-of-the-night earache, but it's been years since I have seen a child at home. Most housecalls now are for chronically ill old folks who are so disabled they just can't get to the office, or they are hospice patients. Even many of these "house calls" have turned into nursing home visits, for few families have the personal or financial resources to care for their aged members at home.

We are also doing fewer inappropriate house calls — the ones we never should have been doing in the first place, the ones with chest pain that might be a coronary, or the severe headache with a change of consciousness. These are much better handled by a 911 call with transport to a place that has more diagnostic and treatment support than a little black bag. In fact, even the black bag has changed. Mine is now brown and is no longer a treatment bag containing a nighttime pharmacy, but is a diagnostic bag like those little ones the neurologists carry around the hospital.

Preventive Medicine

I come from a time when doctors who treated well people were called charlatans (or worse). The number of diseases a person can have and be treated for is necessarily limited. The number of diseases you can try to prevent them from having is infinite. The doctor who promotes his or her services with, "Good thing you called me when you did. You almost had a heart attack." Or, "This could have turned into a pneumonia," has always found a niche on the fringes of the profession, but the mainstream of medicine has rightly been directed toward acute rather than preventive care. It is what we have been trained to do and is what we do best. Plus, it is cost effective.

Third-party payers of the future may become unwilling to pay for a complete package of curative medicine and will emphasize health education and preventive medicine as substitutes. Instead of providing treatment for the predictable outcome of certain lifestyles, the patient will be blamed and be told, "If you had lost that weight your arteries wouldn't be clogged with fat and you wouldn't need that coronary artery bypass. It's all your fault so we aren't going to pay for it." My fear is that doctors will be used to try to enforce the current fad for staying healthy.

Much of what we call preventive medicine is merely our early awkward attempts to see into the future. In a fee-for-service practice, the cost to the patient is an effective brake on this fortunetelling. In a prepay situation, this brake is removed and replaced by third-party carriers limiting access. When the cost to the patient approaches zero, the demand will approach infinity and doctors will be asked to administer the rationing "without affecting the quality of care." In my own rationing system, the care of well patients (preventive medicine) will be on the bottom of the list.

The Patient-Physician Relationship

Since the dawn of time, medicine has been a relationship between two individuals: one ailing and needing help; one with special skills and the knowledge to help. On into the future, the best medicine will still take place when one physician accepts the responsibility for helping one patient. The system works best if the doctor's concern doesn't become too global but remains focused on an individual. As a family doctor, I am most familiar with the strengths and economics of that primary care specialty, but the one-on-one relationship is also present to some degree even in the more limited specialties and persists despite the marvelous technologies of modern medicine.

The mutual trust needed for both diagnosis and treatment is fostered by continuity of care and a longstanding relationship. It becomes even more important when it is necessary to limit treatment.

Modern consumers too often set out to get a problem fixed rather than establish an ongoing relationship with a personal physician. They seem to believe that high quality health care is assured by discovering the proper subspecialist and his or her procedural skill. But they are wrong: it begins (and ends) with a commitment between a personal physician and a patient. Others seem to believe that having a multiplicity of physicians guarantees quality. Fragmented, episodic care is perceived as a form of insurance and imparts a feeling that nothing has been overlooked.

On the other hand, continuity of care also does not guarantee quality. The physician who treats himself has perfect continuity of care, but still has a fool for a patient and a physician.

The golden age of medicine is gone. It was at its peak in the '60s and '70s when physician incomes, prestige, and independence were much greater. The times seemed golden to me not for the harvested coin (family docs have always been on the low end of the fee scale) but rather for the golden glow of approval that a good doctor-patient relationship radiated for us to bask in. It's a lot easier to care for patients who come to you because they have heard good things about you than to care for patients who were happy with their own doctors but had to transfer anyway.

Maybe the doctor/patient relationship has always been more important to doctors than to patients, but until a few years ago, I really believed in its therapeutic value and it seemed to make my job easier and more fun. My patients honored me by picking me as their doctor, and it hurts more when they leave — for whatever reason.

The Physician as Advocate

Future problems will arise from the national decision to allocate a far smaller portion of government funds to medical care than would be required to give patients what they want, which is everything and anything that could contribute to their health and well being. Unless both patients and physicians of the future understand that they are allies and that their interests coincide more often than they conflict, rationing problems are inevitable.

The clear duty and salvation for all physicians was, is, and will be to act as an advocate for our patients in dealing with the health care system; but he who pays the piper *does* call the tune. It is difficult to be an advocate while you are acting as a gatekeeper; and guarding the gate to limit access seems to be one of the roles that society, or at least third-party payers, envisions physicians playing in the future.

Physicians have always disliked the gatekeeper role, but even the more palatable "Case Manager" designation is several steps removed from that of advocate. In the olden days when patients placed themselves under the care of a physician, the physician became the consumer in their behalf — became their advocate to obtain all the medical care necessary with cost being only of peripheral concern. One of our jobs was to try to minimize the cost of illness to a patient, for the patient was the bill payer. But the patient came first —before the needs of the hospital, the employer, the insurance company, the Feds, or the community. Modern data collection allows these third-party intermediaries to push the needs of the patient into the background by applying pressure directly on the physician. Patient satisfaction, convenience, and the patient-physician relationship no longer seem to be a part of the equation.

The Pressure to Conform

The pressures on physicians to conform can be substantial. One metropolitan hospital proposed a bylaw change making "patterns of practice detrimental to the economic well being of the hospital" one of the considerations for renewal of appointment to the medical staff. A bill was proposed in Massachusetts to deny licensure renewal to physicians who refuse to accept Medicare patients, and in New York the same process was suggested for physicians who refuse to accept problem cases because of the medical liability problems there.

"Patient satisfaction, convenience, and the patient-physician relationship no longer seem to be part of the equation."

One of our jobs in the future will be to hold down costs while trying to convince the patient (and ourselves) that it's for their own good and not just to increase our year-end bonus. We will have to learn to ration care and still maintain good relationships with our subspecialty peers who will be in an even greater surplus situation.

These changes and the lack of a stable base are uncomfortable. Human time does not run in a circle, it runs in a straight line. This is why all of us are always a little unhappy, for happiness lies in the comfort of repetition. Things have changed, are changing, and will continue to change, and that's not all bad. Since Hippocrates first said, "Art is long, life is short, the occasion fleeting, experience fallacious and judgment difficult," variables won't and constants aren't. But for some things, the more they change, the more they stay the same.

In 1965 I quit doing tonsils when the St. Paul Companies raised the tonsil classification by $300 from Class II to Class III. In 1985 I quit obstetrics when our physician-owned company raised the OB classification by $3000 from a Class II to a Class III.

But even with the changes, medicine is still fun. The one-on-one personal relationship that is necessary for the best practice of medicine is immensely satisfying. There is nothing I would rather do. A long weekend is just enough time for me to be away from the office. The batteries are recharged and I start getting restless wondering how all the problem patients are getting along.

Bob Zollinger, of Zollinger-Ellison fame, grew up on a farm, headed the Department of Surgery at Ohio State, gardened all of his life, and spent five years in WWI in an army surgical hospital. It all left its mark, for he picked as his epitaph, "Teacher, surgeon, soldier, farmer." I'm thinking that my choice would be, "Doctor, father, husband, storyteller" — in that order. I would suspect that I am a better father than husband; but from the standpoint of knowledge and skill and time spent, medicine — the jealous mistress — would have to come first.

I can picture a time when even a word processing program won't give polish or clarity to my writing, or a time when the nest is empty and I am no longer needed as a father. I can even imagine carrying on as a widower, but I cannot conceive of myself as no longer being a physician. It is the essence of my being. God willing, I hope never to retire.

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60,073 patients (90%) who started on INDERAL® LA stayed on INDERAL LA.[1*]

Surprising? Not really.

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A recent double-blind, placebo-controlled, crossover study in 138 hypertensive patients[2] revealed that INDERAL LA has a side effects profile unsurpassed by atenolol or metoprolol — which shows how well-tolerated once-daily INDERAL LA can be.

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The patients in the nationwide compliance trial were no different from yours. Generally when the antihypertensive regimen is complicated, compliance may become a problem. So, the effectiveness of INDERAL LA as once-daily monotherapy is a big plus. Of the remaining hypertensives in the program, 36% were controlled merely with the addition of a diuretic to INDERAL LA.

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Almost 20,000 of the patients in the nationwide compliance trial were identified as having been noncompliant with their previous antihypertensive therapy. Their physicians reported that 88% showed improved compliance when placed on once-daily INDERAL LA.

Control, comfort, and compliance

ONCE-DAILY
INDERAL® LA
(PROPRANOLOL HCl) **LONG ACTING CAPSULES**

Like conventional INDERAL Tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma

*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

The one you know best keeps looking better

Please see next page for brief summary of prescribing information.

The one you know best keeps looking better

BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION SEE PACKAGE CIRCULAR)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride Inderal LA is available as 80 mg 120 mg, and 160 mg capsules

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites When access to beta-receptor sites is blocked by INDERAL the chronotropic inotropic and vasodilator responses to beta adrenergic stimulation are decreased proportionately

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol resulting from the slower rate of absorption of propranolol Over a twenty-four (24) hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings, however such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

The mechanism of the antihypertensive effect of INDERAL has not been established Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output (2) inhibition of renin release by the kidneys and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain Although total peripheral resistance may increase initially it readjusts to or below the pretreatment level with chronic use Effects on plasma volume appear to be minor and somewhat variable INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate systolic blood pressure and the velocity and extent of myocardial contraction Propranolol may increase oxygen requirements by increasing left ventricular fiber length end diastolic pressure and systolic ejection period The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity

In dosages greater than required for beta blockade INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential The significance of the membrane action in the treatment of arrhythmias is uncertain

The mechanism of the antimigraine effect of propranolol has not been established Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain

Beta receptor blockade can be useful in conditions in which because of pathologic or functional changes, sympathetic activity is detrimental to the patient But there are also situations in which sympathetic stimulation is vital For example in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved In the presence of AV block greater than first degree beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm

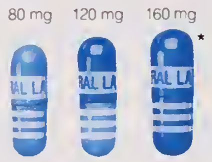
Propranolol is not significantly dialyzable

ONCE-DAILY

INDERAL® LA

(PROPRANOLOL HCl)

LONG ACTING CAPSULES



INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension, it may be used alone or used in combination with other antihypertensive agents particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina palpitations, and syncope. INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first degree block 3) bronchial asthma 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can in some cases lead to cardiac failure Therefore at the first sign or symptom of heart failure the patient should be digitalized and or treated with diuretics, and the response observed closely or INDERAL should be discontinued (gradually if possible)

> IN PATIENTS WITH ANGINA PECTORIS there have been reports of exacerbation of angina and, in some cases myocardial infarction following abrupt discontinuance of INDERAL therapy Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e g , dobutamine or isoproterenol However such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers

DIABETES AND HYPOGLYCEMIA Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes In these patients it may be more difficult to adjust the dosage of insulin

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm Propranolol does not distort thyroid function tests

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME several cases have been reported in which, after propranolol the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. *General* Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

Clinical Laboratory Tests Elevated blood urea levels in patients with severe heart disease elevated serum transaminase alkaline phosphatase, lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension

Carcinogenesis, Mutagenesis, Impairment of Fertility Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice, employing doses up to 150 mg kg day there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

Pregnancy Pregnancy Category C INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

Nursing Mothers INDERAL is excreted in human milk Caution should be exercised when INDERAL is administered to a nursing woman

Pediatric Use Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular bradycardia, congestive heart failure intensification of AV block hypotension paresthesia of hands, thrombocytopenic purpura, arterial insufficiency usually of the Raynaud type

Central Nervous System lightheadedness mental depression manifested by insomnia lassitude, weakness, fatigue reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability slightly clouded sensorium and decreased performance on neuropsychometrics

Gastrointestinal nausea, vomiting epigastric distress, abdominal cramping, diarrhea constipation mesenteric arterial thrombosis, ischemic colitis

Allergic pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress

Respiratory bronchospasm

Hematologic agranulocytosis nonthrombocytopenic purpura thrombocytopenic purpura

Auto-Immune In extremely rare instances systemic lupus erythematosus has been reported

Miscellaneous alopecia LE-like reactions, psoriasiform rashes, dry eyes, male impotence and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg for mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION — *Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS — *Dosage must be individualized* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained Although individual patients may respond at any dosage level the average optimum dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS)

MIGRAINE — *Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimum migraine prophylaxis If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

*The appearance of these capsules is a registered trademark of Ayerst Laboratories

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contributions

Ethics committees in Minnesota hospitals

Evelyn Van Allen, M.P.H., and Steven H. Miles, M.D.+*

In a 1985 survey of Minnesota's 173 hospitals we found that 33 (19.1%) had established ethics committees and six other committees were in the beginning stages. Committees were more common in large hospitals, in urban hospitals, and in those affiliated with religious groups. The typical committee had 14 members with 4 or 5 physicians, 3 or 4 nurses, an attorney, a variety of other staff, and a community representative. Twelve committees reported to the medical staff, 12 to administration, and 7 to the hospital trustees. Committees performed community and staff education, reviewed and developed hospital policies, performed case consultations, and did retrospective case review. Although most committees were authorized to perform consultation, few committees were consulted frequently. This study provides further evidence of the wealth of bioethical program resources in Minnesota.

The expanded application of health care technologies over the past 30 years has brought many benefits but has also produced new ethical dilemmas for health care providers and the people they serve. A variety of bioethical programming techniques such as do-not-resuscitate (DNR) policies and inservice education programs, have been created to facilitate consideration of bioethical issues and develop staff expertise in the ethical and legal standards that pertain to complex medical decisions. Ethics committees are an additional way for health care institutions to assist patients and providers in confronting ethical dilemmas. Institutional ethics committees are multidisciplinary groups of health care professionals specifically established to address bioethical dilemmas within health care facilities.[1]

The following case illustrates a not infrequent dilemma presented to ethics committees, that of determining appropriate consent for treatment: A 67-year-old man with a history of multiple strokes was admitted to a hospital with pneumonia. He was conscious, aphasic, but capable of simple social interactions. Tests showed that he had pharyngeal dyscoordination and chronic aspiration of food into his lungs. A gastrostomy was recommended. Family members refused to come to the hospital to discuss the gastrostomy and refused to authorize the procedure, saying that the patient neither needed or wanted it. The hospital ethics committee was consulted about whether the family's refusal should be honored. Members of the committee reviewed the medical and social information. The family had a long history of financially exploiting and physically abusing the patient, and they were not willing to be informed of the facts regarding the patient's condition. The patient, although incapable of understanding the technical aspects of gastrostomy placement, expressed enjoyment of life and a wish to continue living. He appeared to trust his physicians and was willing to cooperate with the nasogastric feedings that had been instituted pending resolution of the gastrostomy issue. With the ethics consultants, the patient's physicians concluded that family refusal of therapy should not be honored as it was not informed, not in the patient's interests, and not founded on a serious attempt to advance the patient's view of treatment.

This case illustrates one function of an ethics committee. Despite widespread advocacy for them, little is known about the prevalence of ethics committees in completely sampled groups of hospitals. The purpose of this study was to determine the prevalence, design, and function of ethics committees in Minnesota hospitals and learn something about the types of hospitals that are creating these bodies in Minnesota. We hope that this information will be useful to groups who are in the process of establishing a new committee or evaluating an existing one.

Method

This study was carried out by the Minnesota Network for Institutional Committees (see sidebar page 80). In June 1985, two questionnaires were mailed to the chief executives of the 173 acute care and specialty hospitals in Minnesota. One questionnaire, for the executive officer of hospitals without ethics committees, examined interest in ethics committees. If a committee existed, detailed information was collected on the second questionnaire, completed by the committee's chairperson.

Responses were received from 155 (90%) of Minnesota's hospitals. Information from other sources in the Network suggested that all the hospital ethics committees that existed in mid-1985 had been identified, so prevalence data was computed against all 173 hospitals.

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Additional descriptive information for individual hospitals was obtained from Minnesota Department of Health reports and the Minnesota Hospital Association. Urban location was determined by whether a hospital was in one of the five Standard Metropolitan Statistical Areas: Minneapolis-St. Paul, Duluth, St. Cloud, Moorhead, and Rochester. Religious affiliation was defined as a hospital that was owned, operated by, or founded by and maintaining close ties with a religious denomination. Committee age was determined from September 1, 1985, when the survey was completed.

Results

Thirty-three (19.1%) of Minnesota's 173 hospitals had established ethics committees. Six additional hospitals reported that they were in the early stages of forming a committee or assessing the need for one, 36 hospitals requested information on establishing ethics committees; another 36 indicated that, after review, they had decided not to establish a committee.

Hospital characteristics: Hospital size and location are shown in Table 1. While hospital size was the most striking factor associated with ethics committees ($P < .005$, Chi-Square), an urban location seemed to increase the likelihood that a medium-sized hospital, 100 to 200 beds, would establish an ethics committee ($P = .03$, Normal means test).

Fifty percent of the hospitals that were religiously affiliated had an ethics committee. The relationship of religious affiliation and presence of a committee was especially marked in the 133 hospitals with less than 100 beds; all six of such hospitals with committees were Catholic. Several of these committees were medical moral committees initially established to review sterilization decisions.

TABLE 1
Size and location of hospitals with ethics committees

Size		
Beds	N	Ethics Committees (%)
200 +	28	21 (75)
100-199	22	6 (27)*
< 100	123	6 (5)
	173	33
Location		
Urban		
Beds	N	Ethics Committees (%)
200 +	27	21 (78)
100-199	11	5 (45)
< 100	15	0
	53	26 (49)
Non-Urban		
200 +	1	0
100-199	10	1 (10)
< 100	109	6 (5)
	120	7 (6)

Whether a hospital was operated for profit did not appear to be a factor when size, location, and church affiliation were considered. We were unable to assess the role of teaching hospitals in encouraging ethics committees.

Committee characteristics: Minnesota hospitals are rapidly forming ethics committees. Half the committees were less than two years old and, as mentioned, new committees are being formed.* The median committee has 14 members (range 4 to 33). A typical committee has 4 to 5 physicians, 3 to 4 nurses, a chaplain, a social worker, an administrator, 1 or 2 other hospital representatives such as trustees, patient advocates, dietitians, educators, quality assurance staff, discharge planners, genetics counselors, and psychologists; hospital attorneys were on two-thirds of the committees. Two-thirds had community representatives, most of whom were professionals, although three committees had a lay member: two were parents — one of them of a child with leukemia. The third lay member was described as a family member/consumer.

Committees operated under a variety of administrative arrangements. Twelve reported to administration, 12 to medical staff, and 7 to the trustees. Eight committees had their own budget, 10 had expenses absorbed by their supervising body or members' departments. All but three kept minutes. Of these, 12 distributed minutes to members only, 13 to members and other hospital staff. One committee sent quarterly reports to the quality assurance committee; one did not distribute minutes. Twenty committees met monthly, 2 met more often, 4 met every other month, and 6 met even less frequently.

All hospitals were asked how often they referred cases to the courts for resolution. Five of the hospitals with committees (15%) reported one or two referrals per year, primarily for guardianship, one for discontinuation of a respirator. Only 2 of the 122 (1.6%) responding hospitals without committees reported seeking court intervention, one for an elderly patient with cancer who did not want treatment and the other for a family that wanted to transfer a comatose nursing home resident to the hospital to discontinue feeding.

Committee functions: The four usual functions of ethics committees are education, review and development of policies or guidelines, concurrent case consultation, and retrospective case review.[2,3] Most committees had created subcommittees to carry out these functions.

All but one of the committees were engaged in education of committee members and hospital staff. Nearly all committees provided education to community, families, and other health care professionals or organizations; 11 engaged in patient education. One committee sponsored joint meetings with staff from area nursing homes to discuss mutual concerns such as supportive care, living wills, and resuscitation policies. Several committees were establishing bioethics libraries.

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*Author's note: We have learned of four additional hospitals that have formed ethics committees in 1986, bringing the prevalence rate to 26.9%.

All committees were involved in the development or review of hospital policies and guidelines. Sixteen committees named specific policies, including DNR orders (81%); sterilization (25%); brain death (25%); ethics committees (25%); supportive care (25%); resource allocation, e.g., rationing or DRGs (19%); living wills (12%); and others addressing issues such as suicidal patients, handicapped newborns, and family counseling during termination of treatment discussions (31%). Two Catholic hospital committees were developing hospital mission statements based on Catholic moral beliefs.

Twenty-two (67%) of the committees reported that active case consultation was a committee function but six had not yet completed a consultation. The frequency of consultation varied considerably: five committees did one to three per month, 12 had one to three per quarter, and one had a single consultation in a year. Older committees did case consultation more frequently. Sixteen committees had consultation subcommittees. Twenty committees screened consultation requests. Most screening was done by the chair, although in about a third it was done by a subcommittee or a committee member. No information is available on the screening criteria that are used.

Consultations most frequently were initiated by the attending physician but also by nursing staff, ethics committee members or chairpersons, other staff, the patient, or family members. One committee required patient consent before the committee could review the medical record. Seven committees put written consultation reports in the medical record, six keep consultation records only in committee files. One committee records that a consultation has occurred and the attending physician then decides how much material should go into the medical record.

Two-thirds of the committees do retrospective case review. One committee intends to review the cases of seriously ill newborns in which a decision was made to forego treatment. Another is planning a prospective study of decision making by home dialysis patients.

TABLE 2

Comparative prevalence of hospital ethics committees

Survey		Date	N	% Responding	Prevalence
Younger	(4)	1981	402	100%	1%
AHA-NSPR	(5)	1983	973	26%	26%
AHA-NSPR	(6)	1985	856	20%	60%
Wisconsin	(7)	1985	152	65%	36%
Minnesota		1985	173	100%*	19%

*Note: 100% response rate is given because all of the ethics committees in the state were identified.

Discussion

Increasing awareness of the complex bioethical issues accompanying modern medical care has led Minnesota hospitals to create ethics committees as one way to develop expertise in resolving these questions. It is difficult to compare Minnesota's experience to other states'; the few available studies used markedly different definitions of ethics committees and research methodology (Table 2). The prevalence of only 1% in a 1981 study[4] reflects both the infancy of ethics committees and a restrictive definition excluding committees not doing concurrent case review. Two more recent studies with lower response rates[5,6] may have overstated prevalences because of selective response bias. A 1985 Wisconsin study, when adjusted for a similar sampling effect, appears comparable to our findings.[7]

Not surprisingly, we found that ethics committees tend to be in large medical centers that are presumably disposed to develop committees because of their larger staff, more complex policy needs, and greater involvement in tertiary critical care. It is probable that the teaching mission of many large hospitals fosters development of committees to explicitly reflect on treatment issues that would be decided privately between physicians, patients, and families in smaller hospitals. In urban areas, the greater opportunity for "networking" appears to nurture the development of these committees in medium-sized hospitals. The religious tradition in church-affiliated hospitals may also encourage committee formation.

Ethics committees are a new and relatively untested institutional mechanism. Proponents maintain that committees develop expertise in bioethical reasoning and thus improve decision making in patient care. Critics argue that committees impose an inefficient, costly procedural burden that may magnify institutional power at the expense of patient autonomy, and thus disrupt the physician-patient relationship. Discussion of this controversy is beyond the scope of this paper, and the reader is referred to other reviews.[1,8] Like any study of an emerging phenomenon, this study does not resolve these issues and, in fact, hints at how difficult this research will be.

We found that Minnesota hospitals are creating ethics committees in a variety of sizes, compositions, and administrative arrangements, as they 'fit' this concept to their individual environments. Undoubtedly, several successful models will be found for various types of hospital and nursing home environments. Before research to determine the value of ethics committees can proceed, we need a clear understanding of the purpose of bioethics programming in health care facilities and explicit ways to determine whether those objectives are met. The cost-conscious medical market will make it increasingly difficult to encourage ancillary, non-revenue generating services even as it becomes increasingly important to strengthen ethical standards to protect patients. This cost-conscious environment will demand a clearer understanding of the administrative and financial burdens imposed by ethics committees. To this end, separate budgets and cost accounting of staff time will be needed.

While there is a widespread perception that case consultation represents the ultimate purpose of an ethics committee, our data suggest that committees are cautiously approaching this area after spending time in member education and developing committee cohesiveness and trust, which may be fostered by the relatively frequent meetings. Unfortunately, we do not have data on the types of cases that are referred to committees. Such information would lead to a clearer understanding of whether committees were addressing especially difficult decisions or were imposing an additional administrative burden on processes that should be within the capabilities of practitioners. It is encouraging that requests for consultation are coming from physicians, suggesting that they do not find this process disruptive to their patient care responsibility and, in fact, find it valuable.

The Minnesota Network for Institutional Ethics Committees

The Minnesota Network for Institutional Ethics Committees is a grassroots organization of health and social service professionals, administrators, clergy, lawyers, academics, and lay persons involved in biomedical ethics. It began in 1982 as an informal, volunteer effort to share information and educational resources among members of ethics committees in Twin Cities' hospitals. In September 1984, the Minnesota Hospital Association became the Network's sponsor agency. Today, its nearly 750 members come from health care facilities across Minnesota. The Network is informally organized to remain responsive to the evolving needs of its membership and the biomedical ethics community; it is run by a part-time coordinator and a volunteer steering committee.

The Network serves as a source of information on biomedical ethics and facilitates communication among its members, develops educational programs and materials on ethics committees and other topics in medical ethics, assists hospitals and nursing homes to establish ethics committees and develop policies and guidelines to ethical decision making.

This study provides further evidence of the wealth of bioethical programming resources in Minnesota.[2] These resources include the now more than 100 hospital and nursing home ethics committees[9] and organizations like the Minnesota Network for Institutional Ethics Committees. It also includes the support of hospital[10] and nursing home[11] policies on limiting medical treatment, an innovative ambulance service policy,[12] and Minnesota Supreme Court[13,14] and lower court[15,16] rulings on limiting treatment, DNR orders, and brain death. It includes the support of professional organizations like the Minnesota Medical Association, which has issued guidelines on brain death, DNR orders, limited treatment plans, and the withholding of food and fluids.

For individual practitioners, these resources can offer assistance with the most challenging legal, ethical, and emotional issues of our time. These resources also create a responsibility to provide a standard of sophisticated medical care and bioethical decision making that is in step with the latest legal and ethical developments in this field.

Acknowledgments

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Fatal paradoxical cerebral thromboembolus

Gene R. Golfus, M.D., Jesse J. Muir, M.D.†, Jon A. van Heerden, M.B., F.R.C.S.(C), F.A.C.S.††, James V. Harper, M.D.†*

A case of paradoxical cerebral thromboembolus through an unsuspected atrial septal defect after uncomplicated abdominal surgery is presented. Typical features of paradoxical thromboembolus are discussed. Although the problem is uncommon, an awareness of the possibility of paradoxical thromboembolus should aid in rapid diagnosis and allow institution of therapy that may prevent further episodes.

In 1877, Cohnheim[1] described embolism to the right middle artery through an atrial septal defect. Von Recklinghausen initially suggested the term "paradoxical embolism."[2] Since Cohnheim's report,[1] instances of paradoxical cerebral embolism have continued to appear in the literature.[2-6]

The potential for paradoxical cerebral embolus is more common than readily appreciated. Most cases of paradoxical cerebral embolus occur via a probe-patent foramen ovale.[3] Thompson and Evans[2] showed a probe-patent foramen ovale in 35% of 1,100 consecutive autopsies. Paradoxical air embolism in neurosurgical patients is well described.[7] We report a case of fatal paradoxical thromboembolus in a healthy preoperative American Society of Anesthesiologists classification I patient.

Case Report

At admission, a 19-year-old white man had a 3-week history of pain in the left flank. Computed tomography performed elsewhere revealed an abdominal mass. His medical history included no hospitalization or surgery. He was not receiving medication. His physical examination showed a "healthy" man with no abnormalities other than a large irregular abdominal mass. Vital signs were normal, as were laboratory studies. The patient was scheduled for operation in an attempt to resect the abdominal mass. Anesthesia was induced with thiopental, 250 mg, and morphine sulfate, 10 mg. Succinylcholine, 120 mg, was used to facilitate endotracheal intubation. Enflurane, in an inspired concentration of 2.5-3%, was used to maintain anesthesia. The retroperitoneal tumor was unresectable; it encased both the inferior vena cava and aorta. Biopsy demonstrated a grade 4 teratoma (embryonal carcinoma, yolk-sac type, and choriocarcinoma). Postanesthesia recovery was uneventful.

The next morning while walking, the patient suddenly became unresponsive and fell to the floor. His eyes were deviated to the left. Tonic activity in both limbs gave way to a flaccid right side. Computed tomography showed left hemisphere edema compatible with a left middle cerebral artery infarct and midline shift to the right.

Angiography disclosed an embolus occluding the left internal carotid artery/middle cerebral artery bifurcation. A two-dimensional echocardiogram, obtained to rule out an intramural thrombus, was highly suggestive of an atrial septal defect. At this time it was thought that a paradoxical embolus had caused the left hemisphere infarct. A left pterional craniotomy and embolectomy were performed. A clot was removed and resection of the left frontal and left temporal lobes was performed. Concomitantly, a Greenfield umbrella was placed via the right internal jugular vein.

Postoperatively, in the intensive care unit, an episode occurred suggestive of a pulmonary embolism. Because of the grim prognosis, no further aggressive measures were attempted and the patient died the next day. Permission for autopsy was refused.

Discussion

Common features in patients who have paradoxical cerebral embolus are 1) predisposing factors for venous thrombosis, 2) cardiac lesions predisposing for right-to-left shunts (most common are atrial septal defect and probe-patent foramen ovale), 3) young age (i.e., age groups in which strokes are uncommon), 4) frequently the lack of clinically apparent deep venous thrombosis prior to the paradoxical cerebral embolus, and 5) often evidence of pulmonary embolism at some time in the clinical course.[5,6] Our patient demonstrated all of these. His predisposing factors for venous thrombosis included malignancy, pelvic mass, and recent surgery. He had an atrial septal defect. He was young, and deep venous thrombosis was not clinically apparent prior to the paradoxical cerebral embolus. There was also clinical evidence of pulmonary embolism.

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In 1972 Meister et al.[5] reported five patients with paradoxical cerebral embolus and reviewed 128 patients reported to that time. Almost all of the 128 were diagnosed postmortem; only 12 cases were diagnosed during life. None of Meister and colleagues'[5] patients were postoperative. In 1983 Jones et al.[6] also reported five cases of paradoxical cerebral embolus, one of which was a postoperative patient, and reviewed 24 other cases reported since Meister and colleagues'[5] description.

Previous reports indicate that most cases of paradoxical cerebral embolus occur via a probe-patent foramen ovale, but a few occur via atrial septal defect, ventricular septal defect, or other right-to-left shunts. In three of Meister and colleagues'[5] five patients and four of Jones and colleagues'[6] patients, paradoxical cerebral embolus occurred via a probe-patent foramen ovale. In the 128 patients with paradoxical cerebral embolus reviewed by Meister et al.,[5] three instances of paradoxical cerebral embolus were associated with ventricular septal defect, one with patent ductus arteriosus, one with ostium primum defect, and an unspecified number with atrial septal defect. Most cases were believed to be associated with probe-patent foramen ovale. In 20 of 24 cases reviewed by Jones et al.,[6] a probe-patent foramen ovale was responsible for paradoxical cerebral embolus. In the remaining four cases, paradoxical cerebral embolus was associated with atrial septal defect.

The incidence of probe-patent foramen ovale is high. Thompson and Evans[2] reported a 35% incidence of probe-patent foramen ovale, with 6% of all patients having a probe-patent foramen ovale of at least 7 mm diameter. Normally, left atrial pressure exceeds right atrial pressure, functionally closing a probe-patent foramen ovale. When pulmonary embolism, Valsalva's maneuver, positive end-expiratory pressure, or other cause leads to an increase in right atrial pressure that exceeds left atrial pressure, an avenue for paradoxical cerebral embolus exists.[5] The number of patients at risk for paradoxical cerebral embolus may be higher than is thought. Perkins-Pearson et al.[8] reported in 1982 that approximately one-third of patients anesthetized in the sitting position develop a right-to-left atrial pressure gradient 1 hour after the skin incision. It is not known what proportion of patients in other positions develop right-to-left pressure gradients.

There are some common features in patients with paradoxical cerebral embolism, such as young age. Three of Jones and colleagues' five patients were less than age 45 years. In the 24 cases they reviewed, 16 were less than age 60 years, and 11 were less than age 45.

In the 24 cases of paradoxical cerebral embolism reviewed by Jones et al.[6] there was a female:male ratio of 14:10. Overt phlebitis at any time was present in only 2 of 24 patients. Deep venous thrombosis was not obvious clinically in any of Jones and colleagues'[6] patients at the time of the stroke, and only one patient ever showed signs of deep venous thrombosis. Pulmonary emboli were present in 75% (18 of 24) of the patients and were the chief complaint in 42% (10 of 24). In 71%, a predisposing factor for venous thrombosis was present: marked obesity in six, use of birth control pills in three, pregnancy in one, cancer in four, and postoperative orthopedic procedures in three. Two patients had onset of symptoms while straining at stool, but in most reports activity at onset was not noted. The majority of patients (16 of 24) had multiple emboli, most within days or weeks.

In 1972, Meister and colleagues[5] set principles for the clinical diagnosis of paradoxical embolus. Paradoxical cerebral embolus should be considered when a patient with a stroke has one or more of the following: 1) evidence of venous thrombosis, 2) a pulmonary lesion, such as a pulmonary embolus, producing acute increased right atrial pressure, 3) an arterial embolus without an apparent left-sided source, and 4) a cardiac defect or a pulmonary arteriovenous fistula permitting right-to-left flow. Pulmonary embolism is highly associated with paradoxical cerebral embolus.[5,6] If the common causes of stroke in patients with pulmonary embolism can be ruled out, paradoxical cerebral embolus should be considered. When no left heart or carotid source for a cerebral embolus is found, one should consider paradoxical cerebral embolus. Embolic left-sided origins of stroke include atherosclerotic disease of the carotid bifurcation and such cardiac lesions as mitral stenosis, atrial fibrillation, recent myocardial infarction, prosthetic heart valves, bacterial endocarditis, atrial myxoma, and mitral valve prolapse.[5]

The prognosis is poor when there is associated hemispheric edema and right heart failure. Heroic measures have been successful, including pulmonary embolectomy, surgical repair of probe-patent foramen ovale or an atrial septal defect, or vena cava plication with demonstrated deep venous thrombosis. Anticoagulant or antiplatelet therapy may be considered.[5,6] Mortality appears to be high. Although four of five of Jones and colleagues'[6] patients survived, the 24 cases they reviewed had a 50% mortality.

Summary

In summary, we report a case of paradoxical cerebral embolus postoperatively in a young patient with an undiagnosed atrial septal defect.

Paradoxical cerebral embolus cannot be prevented if probe-patent foramen ovale, atrial septal defect, or other right-to-left shunt is unsuspected. However, being aware of the possibility of paradoxical cerebral embolus should aid in rapid diagnosis. This may improve treatment and allow the institution of therapy to prevent further thromboembolus and possibly other episodes of paradoxical cerebral embolus.

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Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,. the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

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*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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The quality of occupational data recorded from the face sheet of Minnesota hospital medical records

Geary W. Olsen, D.V.M., Ph.D., Alan P. Bender, D.V.M., Ph.D.†, and Helen Jagger, R.N., M.P.H.†*

The Minnesota Department of Health conducted a feasibility study for a statewide pathology-based cancer surveillance system. Part of this research involved an evaluation of the percent of Minnesota hospital medical record face sheets that: required the cancer patient's occupation, had actually recorded this information, and agreed with a self-reported occupational history. This study found only 15% of occupations recorded on the face sheet would be of value in an epidemiologic study of occupational experience and cancer. Considerable caution about occupational data obtained from Minnesota hospital face sheets is warranted because of its incompleteness and non-representativeness.

The total impact of occupational exposure on the cancer burden is unknown and of considerable controversy in today's society.[1-6] Most estimates of the proportion of cancer attributable to occupation range from 3% to 7% but have gone as low as 1% and as high as 40%.

Occupation may be ascertained in epidemiologic studies by 1) patient occupational histories; 2) company records; 3) death certificates, and/or 4) medical records. The first two methods may be time intensive and expensive. However, the latter two methods do not yield substantive information on lifetime occupation or the corresponding exposure histories. The development of cancer may not occur until many years after the causal or contributing exposure(s). Therefore, many studies of environmental and occupational associations with cancer require that the subjects' occupational histories be known in order to test the studies' hypotheses. Consequently, abstraction of occupation from medical records may be important for generating occupational hypotheses but *not* for testing these hypotheses. Furthermore, occupational data from medical records may not be appropriate even for generating hypotheses if the data are inaccurate and incomplete. The question then becomes, how accurate and complete are the occupations listed in medical records?

The Minnesota Department of Health (MDH) recently conducted a feasibility study for a pathology-based cancer surveillance system for Minnesota.[7] The purpose of the study was to evaluate the completeness, accuracy, and cost effectiveness of a pathology and population-based cancer surveillance system. Patient demographic and diagnostic data were collected from only two sources, the face sheet and pathology report. This method of data collection was then compared with more traditional means of medical record data abstraction similar to the National Cancer Institute's Surveillance Epidemiology and End-Results (SEER) System. Because of public concern about cancer arising from the occupational setting, various issues of validity were explored with the occupational data collected from the medical records of this feasibility study. These include 1) the percent of Minnesota hospitals that require occupational information on the face sheet of the medical records; 2) the percent of cancer patients who had occupation actually recorded on their medical record; and 3) the ability to predict lifetime occupational history from the occupation recorded on the face sheet. If occupation is not recorded or not reflective of a cancer patient's occupational history, then the validity of occupational data recorded by the statewide cancer surveillance system would be of limited value to developing hypotheses about the relation between occupation and cancer.

Methods

This study consisted of three parts. First, the MDH conducted a survey of all Minnesota hospitals to determine the percentage of hospital face sheets and their corresponding pathology reports that required the patient's occupation. Second, occupation was recorded from 3,938 medical records that were abstracted as part of the cancer surveillance feasibility study. Each occupation was coded according to the Alphabetical Index of Industries and Occupations.[8] The percentage of face sheets with a recorded occupation was then calculated. The third phase of the study compared recorded occupations from the face sheets of 123 cancer patients' medical records with that of a self-reported occupational history.

In this third phase of the study, nurses at the Community Cancer Oncology Program and the Park Nicollet Oncology Clinic provided occupational history forms to all oncology patients who were will-

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ing to respond. Once completed, the occupational history forms were reviewed by the nurse and patient for omissions. Nurses also completed a short document indicating the patient's cancer (site and histology) and the person's occupation as stated in the medical record. The occupation in the medical record was compared with the current occupation listed in the patient's occupational history and with the patient's occupation of one, five, ten, and twenty years ago. Two comparisons were made for each time period. The first compared the exact job, as obtained from the occupational history, to that listed on the face sheet (e.g., janitor, physician, auditor). The second comparison was similar to the first except that it covered major (less specific) occupational categories (e.g., professionals, managers and administrators, sales workers, clerical staff).

Results

Occupation was requested on the face sheet by 124 of 170 (72.9%) Minnesota hospitals: Only 51.1% of urban hospitals (located in Duluth, Rochester, and Minneapolis-St. Paul metropolitan areas) requested occupational information from the patient compared with 80.8% of rural (all remaining Minnesota) hospitals. Adjusting for hospital bed size, occupation was requested 57.6% of the time. Occupation was never requested for any pathology report.

Table 1 shows the distribution, by major occupational categories, of the 3,938 occupations that were abstracted and coded during the course of the MDH's cancer surveillance feasibility study. Three categories in Table 1 require further explanation. The category, "inadequate information provided to classify jobs," means that the industry or employer, rather than a specific occupation, was stated in the occupation code. For example, "worked at Freeway Airlines" does not provide the specificity needed to classify the job. The "no medical record at hospital" category resulted from cases where only the histologic specimen was examined at one of the institutions in the feasibility study. Because the patient was not hospitalized at the institution, a medical record was not filled out. "None listed" means the feasibility study's abstractors failed to record occupation on the abstract or failed to indicate that the medical record did not contain any occupational information. It also includes patients whose neoplasm was determined to be benign (or not a neoplasm) during the site/histology review process.

TABLE 1

Occupations recorded on medical records abstracted during the validation phase of the Minnesota Department of Health Cancer Surveillance Feasibility Study

Occupation	Number	Percent
Professional, technical, and kindred workers	244	6.2%
Clerical and kindred workers	178	4.5
Managers and administrators, except farm	168	4.3
Craftsmen	132	3.4
Sales workers	95	2.4
Service workers, except private household	91	2.3
Operators, except transportation	79	2.0
Farmers and farm laborers	75	1.9
Laborers, except farm	63	1.6
Transport equipment operatives	37	0.9
Private household workers	5	0.1
Subtotal	1167	29.6
Retired, no occupation provided	993	25.2
Occupation not reported	651	16.6
Housewife	440	11.2
Child	64	1.6
Student	48	1.2
Unemployed	48	1.2
Disabled	39	1.0
Inadequate information provided to classify job	60	1.5
No medical record at hospital	233	5.9
"None Listed"	195	5.0
Subtotal	2771	70.4
Total	3938	100.0

It is clear from Table 1 that occupation was not routinely available from the medical records included in the study. The category "retired with no occupation provided" accounted for 25.2% of all occupations recorded. Occupation was not recorded on the face sheet 16.6% of the time. "Unemployed" or lack of specificity of the recorded occupation accounted for 2.7%. Therefore, 44.5% of the medical records did not have any specific occupation listed, although it is highly likely that the patient had been employed during his or her lifetime. In addition, 11.2% of all occupations were listed as housewife. This classification does not necessarily mean that the individual had no occupation outside the home. The 11 major occupation codes accounted for only 29.5% of all cancer patients and these 11 codes do not provide information on length of employment or changes in occupation.

Of the 123 cancer patients who completed occupational histories in the third phase of this study, 53 had medical records that either listed "retired" or did not indicate any occupational information (Table 2). These 53 cancer patients were excluded from the second analysis, which compared recorded occupational data (including housewife) from medical records with data from the corresponding occupational histories (Table 3). The percent concordance of the exact job and the major job category for

TABLE 2

Agreement of occupation between medical record and occupational history for given years prior to 1985 (for all occupational histories)

% Match							
1 Year (N = 123)		5 Years (N = 121)		10 Years (N = 116)		20 Years (N = 112)	
Exact Job	Major Job Category	Exact Job	Major Job Category	Exact Job	Major Job Category	Exact Job	Major Job Category
36.6	42.2	33.0	38.8	31.8	37.9	26.7	29.4

TABLE 3

Agreement of occupation between medical record and occupational history for given years prior to 1985 for which medical record indicated an occupation (other than retired or none)

% Match							
1 Year (N = 70)		5 Years (N = 68)		10 Years (N = 63)		20 Years (N = 59)	
Exact Job	Major Job Category	Exact Job	Major Job Category	Exact Job	Major Job Category	Exact Job	Major Job Category
64.4	74.2	58.8	69.1	58.7	69.8	50.8	55.9

the one-year comparison to the occupation recorded on the face sheet was 64.4% and 74.2%, respectively. The percent concordance for both of these comparisons decreased with each successive time period analyzed. For example, the percent agreement for the 20-year comparison for the exact job and major occupational category was 50.8% and 55.9%, respectively.

Discussion

Occupation, as recorded on the medical record, has been thought to be of minimal value to epidemiologists. However, a review of the literature revealed only one study that has extensively examined this issue.

Swanson et al.[9] analyzed 4,031 cancer cases diagnosed in 1979 for the frequency of reporting of occupation and industry by medical record and death certificates. The percent of medical records with an occupation reported was 38.6% for males and 37.0% for females. Occupational reporting increased from 52.6% for males aged 25-34 to 60.2% for males aged 45-54. It then decreased dramatically to 20.4% for males aged 75-85. Analysis by race, sex, primary site, or hospital site revealed no major differences. For those individuals who died from their cancer, the percent of death certificates that reported an occupation was 94.3%, compared with 39% of the medical records. Occupational data could be obtained 53.7% of the time by reviewing both medical abstracts, and death certificates within one year after diagnosis of an incident cancer case. Swanson et al. concluded that cost-effective and accurate methods must be developed if occupational data are to be collected and used in a statewide cancer surveillance system.

The present study's results provide further evidence that under the current practice of recording occupation on the face sheet of the medical record in Minnesota 1) hospitals often do not require occupational information; 2) the information often is requested but is not recorded; or 3) the occupational information is provided but often does not reflect the cancer patient's occupational history or usual occupation.

From the study data, we can approximate that only 60% of all cancer patients hospitalized in Minnesota will be in hospitals that require occupational information on their medical record. Of these 60%, at most half will have a useable occupation recorded in the medical record. Of these records, only half will generally reflect the cancer patient's occupation 20 years ago. Therefore, it may be estimated that of every 100 cancer patients admitted to Minnesota hospitals, only 15 would have an occupation recorded on the face sheet that could be of value in an epidemiologic study of occupational experience and cancer.

Therefore, at present, the occupational data requested by Minnesota hospitals will not by themselves support epidemiologic studies. Whether the usual occupation reflects a person's occupational history is of little consequence to health researchers if the information is not requested or recorded. Population-based cancer surveillance systems may be able to use usual occupation information recorded form medical records (if complete) to study occupational groups, observe time trends, and form the basis of case-control studies (i.e., to generate hypotheses about possible relationships). However, even if usual occupation becomes routinely collected, occupational and residential histories accompanied by exposure data and other data on risk factors are required to epidemiologically associate an occupational or environmental agent as a contributing factor/cause with the development of cancer.

Summary

Our results demonstrate the difficulty of collecting occupation information from the face sheet of medical records of Minnesota hospitals. The main function of medical records is not for the support of epidemiologic studies. However, many people expect that occupational data in medical records are important to understanding the etiology of cancer. Considerable caution about occupational data obtained from hospital records is warranted because of the incompleteness and non-representativeness of this information. The present practice of not requesting or recording, or of obtaining unuseable occupational data in Minnesota seriously precludes its usefulness in a Minnesota Department of Health cancer surveillance system. This same situation is believed to exist nationally and represents a substantial barrier to increasing our knowledge about occupational exposures and cancer risk. Innovative methods will have to be developed by statewide cancer surveillance systems in order to collect accurate and complete occupational data.

Acknowledgments

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3-4/87

report

Counseling and testing for the human immunodeficiency virus

Margaret L. Simpson, M.D.[*]*, and the MMA Task Force on AIDS*[†]

Initially the antibody test for the human immunodeficiency virus (HIV) was developed for testing donated blood and blood products. Currently, the HIV antibody test is also used in certain clinical and public health situations. When discussing the HIV antibody test with a patient, a physician should review the activities that put the patient at risk for HIV infection and methods to reduce the future risk of HIV exposure.

Recently, Dr. Keith Henry, St. Paul-Ramsey Medical Center, reviewed the HIV tests being performed in this area. Seventy-five percent of nondonor blood samples are being done in physicians' offices and 25% at the testing and counseling sites.[1] The rate of reactive HIV antibody tests was 7.1% in physicians' offices as compared with 13.2% at the testing and counseling sites. These figures point out the need to assess the appropriateness of both testing a patient and providing counseling for disease prevention.

Persons at High Risk

The Centers for Disease Control advocates that all persons who have been involved or continue to be involved in activities putting them at high risk for HIV be tested for the virus. Persons at high risk include 1) men who have sex with other men, 2) persons who share needles for parenteral injection, 3) men or women who have sex with many different partners, 4) women or men who have sex with a person who participates in any of these high-risk activities or with someone who has acquired immunodeficiency syndrome (AIDS).[2]

Persons receiving blood transfusions since 1977, and, to a much lesser extent, those receiving blood transfusions since the release of the HIV antibody test in May 1985, are also at risk for HIV infection.

Counseling Persons at High Risk

Providing counseling in conjunction with HIV antibody testing promotes activities that will help prevent transmission and acquisition of the virus. Persons who are infected need to be aware of the activities that will put them or other persons at risk. Currently, there is concern that repeated exposure to HIV or other diseases may predispose a person to AIDS or AIDS related complex (ARC).[3]

The following facts need to be discussed when reviewing HIV transmission. They apply both to those who have a seroreactive *and* those who have a seronegative HIV antibody blood test but are involved in high-risk activities.

'Sexual activity is a major mode of HIV transmission. The virus is transmitted when there is an exchange of body fluids (primarily semen, blood, vaginal secretions, feces, or urine). Although the AIDS virus has been isolated from saliva it is not a significant risk for the spread of AIDS.[4]

For homosexuals oral-penile, oral-anal, and anal-penile contact are high-risk activities. Heterosexual high-risk activity includes oral-penile, oral-anal, oral-vaginal, penile-vaginal, and penile-anal activity. Condoms and good lubrication should be used to prevent the spread of virus.[2] "Safe sex" is the general term applied to sexual activities that do not facilitate the spread of the AIDS virus. Because patients may not completely understand the anatomical description of these activities, "slang" terms may have to be used. However, *specific* counseling about activities must be provided to ascertain the person's understanding about HIV transmission.

Heterosexual activity also contributes to HIV transmission. Recent studies have shown a transmission rate of 16% to 42% from infected men to women with no other risk factors. This transmission rate ranged from 5% to 50% from infected women to men. The lower transmission rates in both groups were seen in the transfusion-related disease; the higher rates of heterosexual transmission occurred in the parenteral drug abuse seroreactives.[5,6] The percentage of reported AIDS cases among women has been relatively stable. However, fewer of the female cases are reporting any high-risk activity other than heterosexual contact.[7]

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- Reduction of the number of sexual contacts is strongly advocated. However, having high-risk sexual activity with a smaller number of partners is not a solution. Although gay men in San Francisco reduced their numbers of sexual partners, their HIV antibody seroconversion rate persisted at 6% over 8 months because body fluids were still being exchanged.[8] Condoms should always be used in an uncertain sexual encounter. The risk of HIV exposure is also reduced in monogamous relationships between HIV seronegative individuals.
- High-risk individuals should not share needles for parenteral drug injection.
- Such individuals should not donate blood, semen or other organs and should remove "donor" from their driver's license if it is present.

Counseling Persons Infected with the AIDS Virus

Persons infected with the AIDS virus should be told the following during counseling:

- Infected persons must inform health care providers (including dentists) for two reasons: health care workers must take appropriate blood and body fluid precautions when providing patient care; and because of the unique clinical problems that may occur in HIV-infected persons, a physician needs to be aware of the individual's serological and high-risk status to provide appropriate clinical evaluation.
- Women (and men) who are infected with the AIDS virus need to realize that this virus can be transmitted in utero to infants. Preliminary studies indicate that up to 65% of infants born to infected women will be infected with the virus.[9] A significant percentage of the HIV-infected infants will develop AIDS or ARC.
- HIV-infected persons are urged to refer the individuals with whom they have had high-risk sexual activity or needle sharing to receive counseling. The HIV-infected person may refer the person themselves. If they do not feel comfortable doing so, assistance is available at the testing and counseling sites by state and county health department personnel.
- Although casual household transmission is not a route of spread for this virus, HIV-infected persons are advised not to share toothbrushes or razor blades. Three household contacts have developed a seroreactive HIV antibody. Two had provided extensive support care with frequent contact of blood and body fluids without wearing gloves.[10] The third case involved an older sibling of a transfusion-related AIDS (ARC) case who is seroreactive.[11] Over 350 household contact cases have been tested, only those who were sexually active with the person with AIDS/ARC, children born to infected mothers, and a family member with other risk factors for AIDS were found to be seroreactive.

Reviewing AIDS Symptoms

In addition to providing information regarding HIV transmission, physicians and counselors need to review the signs and symptoms of progressive HIV disease with seroreactive individuals. These include persisting cough with fever and dyspnea, persisting fever, night sweats, lymphadenopathy (particularly if increasing), unexplained and undesired weight loss, profound fatigue, persisting skin lesions, unexplained diarrhea, and new persisting headaches. All HIV-infected individuals should see a physician for a history and physical, a review of the disease process, and counseling. A physician evaluation of HIV individuals should include the counseling described here as well as a psychosocial evaluation to determine how well the individual is coping with the information and the necessary lifestyle modifications.

A thorough history and physical also should be performed. Suggested basic laboratory tests include a CBC with differential and platelet count and hepatitis B surface antigen and surface antibody and syphilis serology. Immunization with heptavax should be considered if the person is hepatitis B antigen and antibody negative. Pneumovax immunization also should be considered in symptomatic patients because of the prevalence of pneumococcal pneumonia in this population. A generally healthy lifestyle is advocated for all patients but particularly for those who are seroreactive for the human immunodeficiency virus.

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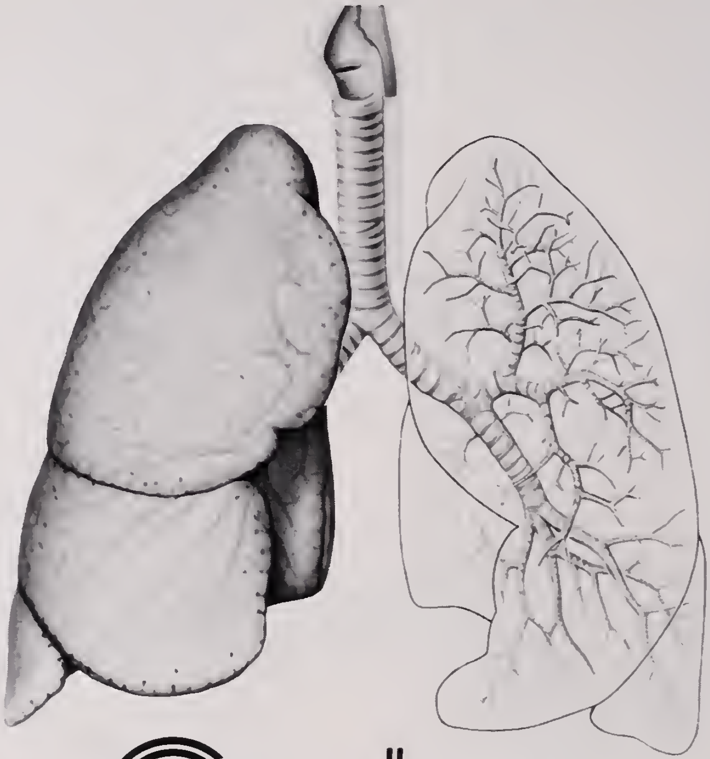

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- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
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- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
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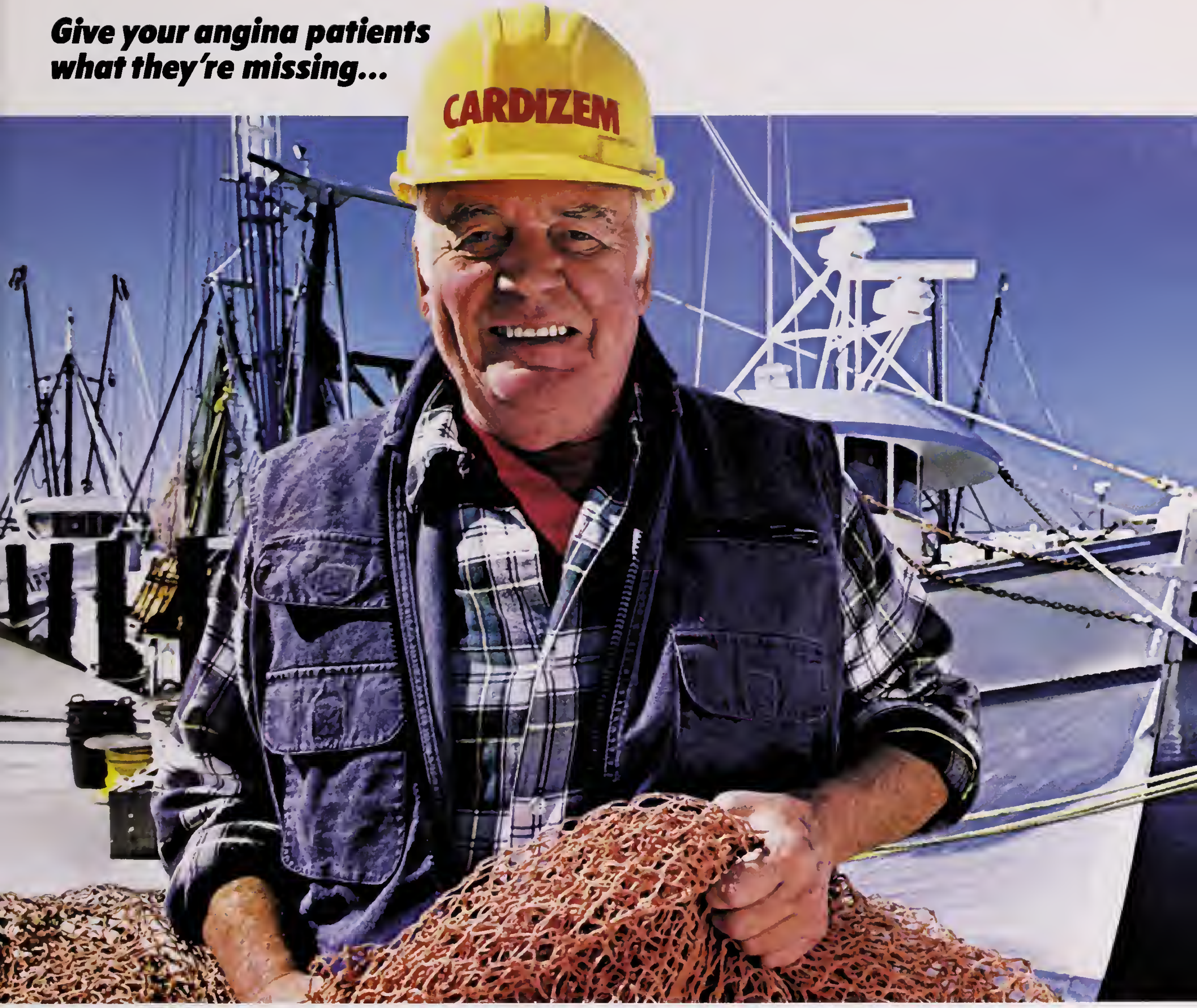

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WARNINGS

1 **Cardiac Conduction.** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0 48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem*

2 **Congestive Heart Failure.** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*

Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited Caution should be exercised when using the drug in such patients

3 **Hypotension.** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*

4 **Acute Hepatic Injury.** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes, however, these changes were reversible with continued dosing*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity There was also no mutagenic response in in vitro bacterial tests No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality These doses, in some studies, have been reported to cause skeletal abnormalities In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus

Nursing Mothers. *Diltiazem is excreted in human milk One report suggests that concentrations in breast milk may approximate serum levels If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted*

Pediatric Use. *Safety and effectiveness in children have not been established*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular.	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic.	*Petechiae, pruritus, photosensitivity, urticaria*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM. alopecia, gingival hyperplasia, erythema multiforme, and leukopenia However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established

Issued 7/86

See complete Professional Use Information before prescribing

References: 1. *Pepine CJ, Feldman RL, Hill JA, et al Clinical outcome after treatment of rest angina with calcium blockers. Comparative experience during the initial year of therapy with diltiazem, nifedipine, and verapamil Am Heart J 1983, 106(6):1341-1347* **2.** *Shapiro W Calcium channel blockers Actions on the heart and uses in ischemic heart disease Consultant 1984.24(Dec):150-159* **3.** *Johnston DL, Lesoway R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris A placebo-controlled, double-blind, randomized, crossover study Am J Cardiol 1985,55 680-687.* **4.** *Cohn PF, Braunwald E Chronic ischemic heart disease, in Braunwald E (ed): Heart Disease A Textbook of Cardiovascular Medicine, ed 2 Philadelphia, WB Saunders Co, 1984, chap 39* **5.** *Schroeder JS. Calcium and beta blockers in ischemic heart disease. When to use which. Mod Med 1982,50(Sept).94-116*

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malpractice claim review

Pediatrics, Urology

MMIE Risk Management Committee
Paul S. Sanders, M.D., Chairperson

Allegation

Negligent drug administration.

Facts

The patient, a 7-year-old, was seen by his pediatrician, Dr. X, for a preoperative history and physical prior to bladder surgery. Although the child's allergy to sulfa was clearly documented in the clinic chart, Dr. X failed to note it when he dictated his history and physical. Upon the child's admission to the hospital, the child's mother informed the nurses of the child's allergy. The allergy was documented in the nurses' notes and identified on an allergy armband the child wore. Surgery was performed by Dr. Y, a urologist. Postoperatively, the child did well and was discharged on Septra, a combination of sulfamethoxazole and trimethoprim, by Dr. Y. After starting on the medication the child had a severe allergic reaction including high temperature, stomach pains, diarrhea, dizziness, severe headaches, and vomiting. The patient's symptoms cleared after the error was discovered and the medication was discontinued.

Disposition

This case settled for $1,261.00 with the hospital, the surgeon, and Dr. X each contributing to the settlement.

Reasons for Settlement

(1) Although Dr. X knew of the child's allergy to sulfa, he failed to note it in his dictated preop history and physical; (2) Although the child's allergy to sulfa was documented in the hospital chart and was identified on an allergy armband the child wore during his hospitalization, the surgeon admitted he failed to note it when he prescribed Septra; (3) Although the child's medication order sheet identified the child's allergies, the pharmacist failed to note it when filling the contraindicated medication.

Risk Management Comments

Approximately 10% of all malpractice cases involve drug-related injuries. Frequently, they arise when pertinent information about drug allergies is not recorded in all of the appropriate places in the medical record or is overlooked by the health care provider. Clinics and hospitals have systems in place to alert physicians to patient allergies. However, even "fail safe" systems break down if physicians aren't diligent in passing on information to consultants or in reviewing the chart.

Another concern raised by this case is physicians' lack of familiarity with the drugs they are prescribing. Occasionally, physicians will forget to consider all of the components of a combination drug, resulting in a contraindicated medication being prescribed. If a physician is unsure of the chemical make-up of a medication, he or she must be certain to check the PDR and should consider whether the use of chemical names, rather than brand names, for drugs might help avoid possible errors.

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book review

Medical Care Can be Dangerous to Your Health

New York: Harper & Row, 1984
Eugene D. Robin, M.D.

Reviewed by Walter W. Benjamin, Ph.D.,
Professor of Religion, Hamline University,
St. Paul, MN.

One of the dangers concomitant with the rising tide of malpractice and medical critique is that physicians may turn a deaf ear to the legitimate inquiry of their practice and health care delivery. Given the present revolutionary and accelerating changes in medicine and the usurping of physician autonomy and turf by corporations, insurance companies, and the government, practitioners could easily resist all change and develop a siege mentality. While there have always been those whose primary interest lies in "doctor bashing," Dr. Robin is not of their company. His intention is not to increase the angst of troubled fellow professionals but to demystify the medical reality so that patient autonomy is increased.

Robin is no medical maverick. His credentials are impeccable. He is currently professor of medicine and physiology at Stanford University, formerly of the faculties of Harvard and the University of Pittsburgh. He is a former president of the American Thoracic Society and chair of the Pulmonary Advisory Committee of the National Heart and Lung Institute. A man of renaissance interests, he has taught Russian literature in Stanford's freshman-sophomore seminar program and worked as a consultant to the governments of France and Ireland on problems on the relation of basic science to clinical science.

The title of his work (originally published as *Matters of Life and Death*) was probably generated in the mind of a vice president in charge of marketing! Basically, it offers an explanation of the utilitarian risk-benefit paradigm that physicians use in managing an ill patient. Robin assumes that the popular press has publicized all too well the benefits, and he concentrates on the increasing risks, iatrogenic and iatroepidemics for which an ever-expanding technology is used unwisely. He recounts dozens of therapies that promised healing but brought morbidity, among them: Diethylstilbestrol to prevent spontaneous abortion, high oxygen exposure for premature babies and blindness, internal mammary artery ligation for coronary artery disease, ileal bypass for obesity, Chloramphenicol and bone marrow depression, pneumothorax for tuberculosis, adrenalectomy for high blood pressure, tonsillectomy in children, radiation for acne, flow-directed catheters in the blood vessels of the lung, thalidomide, gastrojejunostomy for peptic ulcer, psychosurgery for schizophrenia, thyroid removal or suppression via drugs for coronary artery disease or chronic lung disease. And so it goes.

Robin suggests expanded clinical trials as part of the solution to these tragic "rush to judgment" medical treatments. Patients should know that surgery can be classed as "necessary," "unnecessary," and "in-between." They should know that the various sectors of medicine are often unconsciously myopic (remember the wag who said, "If the only tool you have is a hammer, everything looks like a nail") in terms of treatment.

Recalling the sage advice of Benjamin Franklin that "nothing is more fatal to health than overcare of it," Robin protests medicine's tendency to make patients out of normal human beings. He supports the growing number of physicians who are questioning the benefit of the annual health checkup and the "executive physical" (Robin overlooks the placebo effect here), mammography, stool guaiac examination, tonometry, and even the periodic Pap smear. "The truth is that there has never been an acceptable study either to confirm the Pap test in apparently normal women or to indicate the magnitude of risks." Crusades trumpeting the "stamping out" of cancer or heart disease have not only led to unrealistic expectations and over-testing, but to the devastating emotional agony of the false-positive experience.

Robin's thesis is a more gentle rendition of Ivan Illich's *Medical Nemesis: The Expropriation of Health* of a decade ago. Health, not illness, is the normal state of life; most humans are not fragile or disease-ridden. Medicine should cease overestimating the potential benefits it can confer and the potential dangers of illness. "Remember that life is to be lived," he reminds his reader, "It is far too short to be lived in a state of obsession with the possibility or the prevention of disease. Not only is an ounce of prevention not terribly effective, it can cause a pound or more of distraction."

In an appendix Robin sets forth specific recommendations for changing the medical system. He recommends we:

- Reform medical education: Increase communication skill; enhance balanced evaluation of new technologies; reduce dogma/enhance flexibility; weaken hierarchical structure; reduce admissions.
- Expand clinical trials: Increase federal funding; establish the National Institutes of Health as the umbrella under which trials at medical schools and some community hospitals take place.
- Perform only specifically relevant diagnostic procedures: Eliminate the present "shotgun" approach.
- Set more rigorous criteria for screening of normal subjects: Undertake a major medical effort only after its efficacy, sensitivity, specificity, and accuracy have been determined in a clinical trial.
- Increase support for basic medical research.
- Reduce numbers of doctors and hospitals.
- Be more open toward medical errors and to medicine's critics.

This is an excellent book for physicians as well as patients. Robin can be faulted, however, for not acknowledging that corrective measures (DRGs are nowhere mentioned in the text) already in place are serving to bring about reform. Nonetheless, he is right to explore medical utopianism to the end that there is a rapprochement between patient expectation and medical possibility. We would all agree that important communities — families, churches, schools, neighborhoods, support groups, voluntary societies — along with medicine serve to enhance the good life. Robin has a readable style and a text punctuated with many case histories that illustrate his points — sometimes directed at physicians through his advice to patients!

"Two accurate statements that doctors could make are 'I don't know' and 'I was wrong'. But one doctor seldom makes these statements to another and almost never to a patient . . . Every doctor is frequently uncertain and frequently wrong . . . Your acceptance of him as a partner implies a measure of trust. If you want to know more, ask him. If you disagree with him, tell him. Any doctor worth his fee welcomes an informed patient."

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FEBRUARY 1987

2-6 **Updates in Clinical Gastroenterology** Mayo Clinic/Mayo Foundation, Buena Vista Palace, Lake Buena Vista, Florida. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

6 **Burn Care Update** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **Current Concepts of Cardiology** Abbott Northwestern Hospital; Sawmill Inn, Grand Rapids, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

9-13 **Practical Concepts in Rheumatology and Musculoskeletal Disease** Mayo Clinic/Mayo Foundation; Sheraton Scottsdale, Scottsdale, Arizona. CONTACT: William L. Nietz, Mayo Clinic, 200 First Street SW, Rochester, Minnestoa 55905; (507) 284-2085.

13 **Minnesota Dermatological Society Melanoma Seminar and Winter Quarterly Meeting** Minnesota Dermatological Society; Hennepin County Medical Center, Minneapolis, Minnesota. CONTACT: J. Corwin Vance, M.D., 701 Park Avenue South, Minneapolis, Minnesota 55415; (612) 347-2332.

16-20 **Clinical and Laboratory Hematology: Current Issues** Mayo Clinic/Mayo Foundation; Maui Marriott, Lahaina, Maui, Hawaii. CONTACT: William L. Nietz, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

17 **Cardiac Surgery CME** Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

19-21 **Practical Clinical Neurology** Department of Neurology, Mayo Graduate School of Medicine; Americana Resort and Conference Center, Lake Geneva, Wisconsin. CONTACT: William Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

20-21 **Clinical Applications of the Nd: Yag Laser** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

21-28 **Rheumatology Symposium VI** Minnesota Medical Association Subcommittee on Rheumatic Diseases; South Seas Plantation, Captiva Island, Florida. CONTACT: Minnesota Medical Association, Department of CME, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

26 **Advanced Cardiac Life Support Certification Course** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

MARCH 1987

2-6 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

4-5 **Drug Therapy Symposium VIII** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

4-6 **Fifth Annual Critical Care Conference** St. Paul-Ramsey Medical Center, Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

13 **Psychiatry Specialty Course: DSM3** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis; CONTACT: Office of CME, Box 202 Mayo, 420 Delaware St. SE, Minneapolis, MN 55455; (612) 626-5525.

14-21 **Symposium on Sports Medicine** Minnesota Medical Association Subcommittee on Sports Medicine; Radisson Inn Maingate, (Orlando) Kissimmee, Florida. CONTACT: Minnesota Medical Association, Department of CME, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

20-21 **Eighth Annual Occupational Medicine Update** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

21-22 **Lasers in Gynecology and Urology** Abbott Northwestern Hospital, Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, MN 55407; (612) 874-5461.

27 **Selected Problems in Gastroenterology** The Duluth Clinic, Ltd.; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

28 **Minnesota Society of Anesthesiologists Spring Scientific Meeting;** Minnesota Society of Anesthesiologists; Marriott Hotel, Bloomington, Minnesota. CONTACT: Peter A. Southorn, M.D., 200 First Street SW, Rochester, Minnesota 55905: (507) 286-8701.

APRIL 1987

2-4 **Primary Care Medicine** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

3-4 **Colorectal Problems** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street, SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-7 **Annual Ophthalmology Course: Pediatric Strabismus** CME, Medical School, University of Minnesota; Holiday Inn-Downtown, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-8 **Minnesota Academy of Family Physicians Annual Spring Refresher** Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington, Minnesota. CONTACT: Virginia Barzan, Executive Director, MAFP, 2221 University Avenue SE, Suite 426, Minneapolis, Minnesota 55416; (612) 623-2890.

9-10 **Obstetrics and Gynecology Update** CME, St. Paul-Ramsey Medical Center, Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

9-10 **Eating Disorders** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

9-11 **Allergy and Clinical Immunology** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10 **Third Annual Duluth Heart Conference** The Duluth Clinic, Ltd. & St. Mary's Medical Center, Regional Heart Center; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

20-24 **Family Practice Review: Update 1987** CME, Medical School, University of Minnesota; Radisson Hotel South, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

23-24 **Difficult Decisions in Pediatrics** Mayo Clinic, Mayo Clinic, Rochester, Minnesota. CONTACT: Patricia S. Simmons, M.D., Department of Pediatrics, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2511.

25 **Minnesota Urological Society Annual Spring Seminar** Minnesota Urological Society; L'hotel Sofitel, Minneapolis, Minnesota. CONTACT: Helen Chanak, 3625 West 65th Street, Suite 120, Edina, Minnesota 55435; (612) 920-7660.

MAY 1987

6-8 **Minnesota Medical Association's 134th Annual Meeting and Scientific Program** Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

13-14 **Human Aging X** CME, Medical School, University of Minnesota; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525

15-16 **The Complicated Diabetic** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-20 **North American Primary Care Research Group** CME, Medical School, University of Minnesota; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

19 **Gynecologic Oncology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

20-22 **Current Concepts in Radiation Therapy** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Medical School, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

29-31 **Surgery for the Primary Care Physician** CME, Medical School, University of Minnesota; Grandview Lodge, Brainerd, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

JUNE

1-3 **Laser Surgery - Gynecology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

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Southwest: Thomas-Davis Medical Centers, a multispecialty group practice network in Tuscon, Tempe, and Green Valley, Arizona, needs an allergist and a dermatologist for its Tempe facility (located in the Phoenix area). First-year guarantee plus incentive. Early shareholder in both medical practice corporation and HMO. Excellent fringe benefits and profit-sharing retirement. Fee-for-service, as well as doctor-owned HMO. Must be board eligible or certified. Call or write: James J. Vitali, Executive Administrator, PO Box 12650, Tucson, Arizona 85732. 2-3/87

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Family Medicine — several outstanding family practice opportunities available in an attractive city of 80,000 along the Mississippi River. Competitive salary and benefits with paid interview and relocation expenses. Call: Robert A. Douglas, M.D., 1-800-327-1585. *1-2/87

Family Practitioner: Marshfield Clinic-Colby Center is seeking a Board Certified/Board Eligible family practitioner to join another family practitioner in an established office-based group practice in Colby, Wisconsin. The Colby Center offers the family practitioner the autonomy of a private, primary care practice, plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges but without the distractions of OB or surgical responsibilities. Excellent salary and benefits. Please send CV to: Robert Peterson, Director, Regional Services, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449, or call collect at (715) 387-5498. *3-4/87

Pediatrician, BC/BE, to join dynamic staff of aggressive 99-bed community hospital. Salary guarantee and other incentives. Quality lifestyle in economically diversified community less than one hour from Minneapolis or Mayo. Call: (507) 332-2961 (9 a.m. - 10 p.m.) or write: Smith, Orr and Associates at 1124 Parshall Street, Faribault, Minnesota 55021. 1-2/87

Urologist, BC/BE, to join dynamic staff of aggressive 99-bed community hospital. Salary guarantee and other incentives. Quality lifestyle in economically diversified community less than one hour from Minneapolis or Mayo. Call: (507) 332-2961 (9 a.m. - 10 p.m.) or write: Smith, Orr and Associates at 1124 Parshall Street, Faribault, Minnesota 55021. 1-2/87

OB/GYN, BC/BE, to join dynamic staff of aggressive 99-bed community hospital. Salary guarantee and other incentives. Quality lifestyle in economically diversified community less than one hour from Minneapolis or Mayo. Call: (507) 332-2961 (9 a.m. - 10 p.m.) or write: Smith, Orr and Associates at 1124 Parshall Street, Faribault, Minnesota 55021. 1-2/87

Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

Medical Practice Sales and Appraisals: We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice, contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, Pennsylvania 19004; (215) 667-8630. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Wanted: Board Eligible/Certified Internist for primary care clinic near 75-bed hospital. Ideal community of 20,000 with a business area of 60,000 centered in a four-season recreational area. Specialty medical services available locally. Incentive earnings plan, insurance, and retirement plans available. Contact: Dennis Knudson, Administrator, LP Medical Clinic, 820 9th Street North, Virginia, Minnesota 55792. 5-2/87

St. Peter, Minnesota: Available immediately. Position of senior staff physician to work with progressive and forward-looking staff and administration to meet the medical needs of the patients at St. Peter Regional Treatment Center. JCAH accredited. Delightful setting in the heart of the Minnesota River Valley. University town of 10,000, ten minutes from Mankato, and one hour from the Twin Cities. Salary range in high-60s to 70s for BC/BE according to experience with excellent fringe benefit package and an opportunity for expanding income through minimal call. An AA/EOE employer. For further information contact: S.K. McHutchison, M.D., Clinical Director, St. Peter State Hospital, 100 Freeman Drive, St. Paul, Minnesota 56082; (507) 931-7707. (R)

Physicians Needed Over 400 opportunities nationwide!! Call (612) 786-1929 or send CV to: Earl Czech, North Central Staff Services, Inc., 4175 Lovell Road, Suite 108, Circle Pines, Minnesota 55014. 1-2/87

Internist needed for a busy, two-member practice in a community of 40,000 near Minneapolis, Minnesota. Competitive first year salary with incentive benefits and early partnership. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. 6-2/87

Green Bay, Wisconsin: 27-physician multispecialty group seeking BC/BE physicians in the following specialties: Family Practice, Ophthalmology, ENT, Dermatology, Plastic Surgery, Radiology, OB-GYN, Internal Medicine, and Pediatrics. Green Bay is a progressive community with an easy lifestyle, ample outdoor activities, excellent schools, and cultural activities. The Clinic offers competitive salary and excellent fringe benefits. Interested physicians please contact: W.J. Mommaerts, Administrator, West Side Clinic, sc, PO Box 19070, Green Bay, Wisconsin 54307-9070. 4-3/87

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

General Internist to join our group of five family practitioners, one obstetrician, and one surgeon. We are located in a central Minnesota community of 9,000. Most aspects of internal medicine are available to this already established practice, including gastroscopy and invasive cardiovascular monitoring. Competitive salary with option to buy into group after one year. For information contact: Michael Neudecker, M.D., Medical Center PA; 209 First Street SE, Little Falls, Minnesota 56345; (612) 632-6611. (R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Physician or General Internist needed for an established primary care clinic of four family physicians and a general surgeon. Guaranteed first-year salary with benefit program. Located in a small town on the beautiful north shore of Lake Superior (service area population of 12,000) only 22 miles from Duluth, which provides excellent referral and continuing education resources. Call collect: (218) 834-2171, or write: Steve Bjorum, Executive Director, Community Health Center, Inc., 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Family Physician to join group of six board certified family practitioners and one board certified general surgeon. Liberal vacation and educational allowances. $50,000 salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in Southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, Minnesota 56013; phone (507) 526-7371; personal phone (507) 526-3177. Marjeane Werner, Clinic Administrator; phone (507) 526-7371; personal phone (507) 854-3682. (R)

Emergency Medicine: Emergency physicians needed to staff clinic and hospital emergency room. Multispecialty group located in ideal area 90 minutes from Minneapolis/St. Paul, excellent schools, etc. 132-bed hospital has an active educational program including ACLS. Contact: Richard W. Golly, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. (R)

Arizona-based Physician Recruitment firm has opportunities coast to coast. "Professionals working with Professionals." Over 14 years' experience. Call: (602) 795-7474; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252; (602) 990-8080. *(R)

Canterbury Inn Bed & Breakfast: Rochester's unique alternative to hotel living. Victorian charm with modern comforts. Private baths, fireplace, central air conditioning, gourmet or special diet breakfast anytime, "tea-time" (wine, hors d'oeuvres, etc.) daily. Private, off-street parking, three blocks to Mayo Clinic and St. Mary's. A very special place for you, your colleagues, and your patients while in Rochester. $50/single, $60/double. 723 Second Street SE, Rochester, Minnesota 55902; (507) 289-5553. (R)

Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, internal medicine with interest in pulmonary medicine or cardiology, ear/nose/throat, and obstetrics/gynecology. Bemidji Clinic is a 24-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or N.A. Skogerboe, M.D., Medical Director; (218) 751-1280. (R)

Wanted: Family Practitioner—Ob/Gyn Group practice, central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (755), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

OB-GYN needed for busy, modern practice with one female board certified OB-GYN in suburban St. Paul. Extremely flexible hours to accommodate personal lifestyle. Generous benefit package plus liberal vacation time and paid continuing education. Salary first year. Early partnership; (612) 455-3200. (R)

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

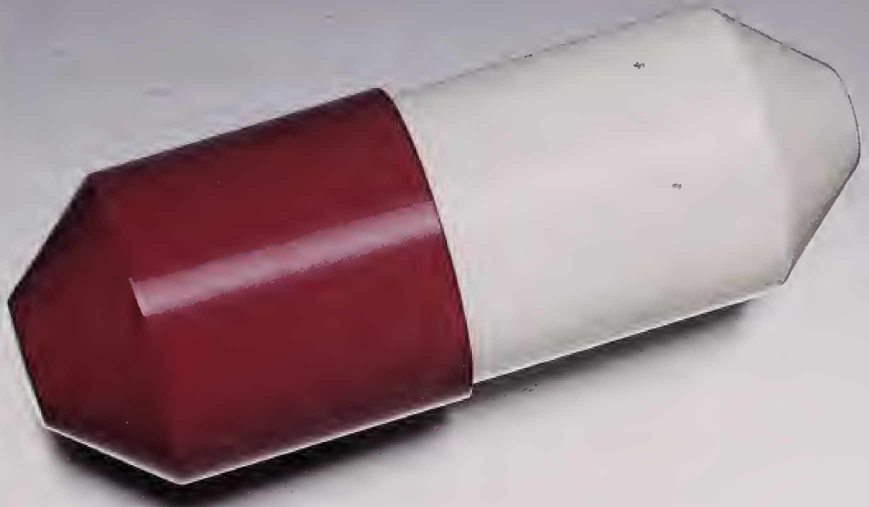
Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ:L42

In Hypertension*... When You Need to Conserve K+

Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum K^+ and BUN should be checked periodically (see Warnings and Precautions).



Potassium-Sparing

DYAZIDE®

25 mg Hydrochlorothiazide/**50 mg** Triamterene/SKF

Over 20 Years of Confidence

The unique
red and white
Dyazide® capsule:
Your assurance of
SK&F quality.

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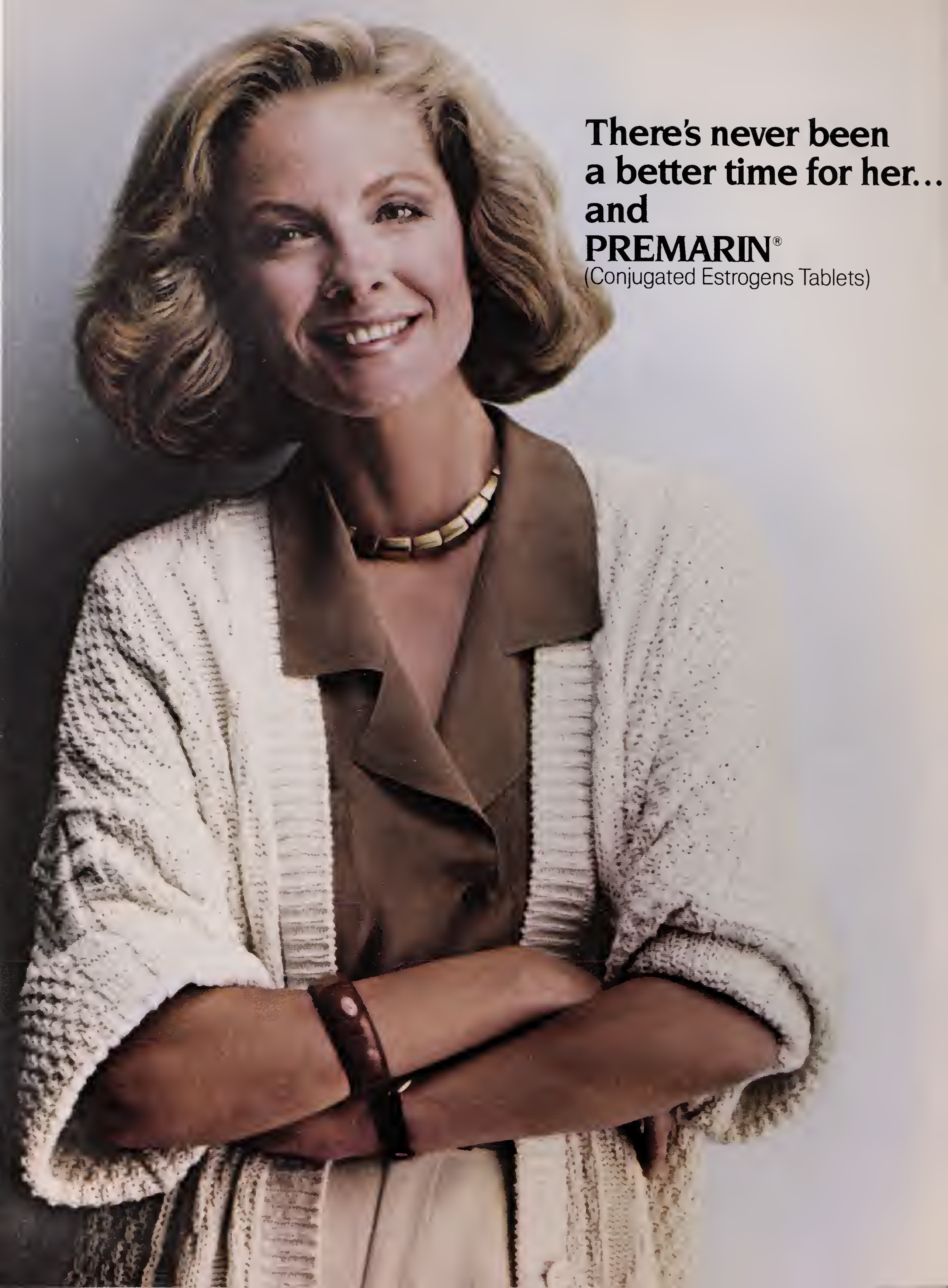

There's never been a better time for her…
and
PREMARIN®
(Conjugated Estrogens Tablets)

Now the evidence looks better than ever

Significantly reduced risk of endometrial hyperplasia

Endometrial hyperplasia was significantly reduced when progestin was added to PREMARIN therapy for more than ten days a month.[1-4] The risk of endometrial hyperplasia may also be reduced through cyclic administration of unopposed, low-dose PREMARIN.

Effect on lipids—an important feature

PREMARIN used alone does not adversely affect lipid levels. In fact, a clinical study has shown a significant increase in HDL cholesterol—from 49.7 mg/dL to 56.4 mg/dL—and decrease in LDL cholesterol—from 165.1 mg/dL to 138.1 mg/dL—after one year of therapy with PREMARIN, 0.625 mg.[5]

Low-dose control of menopausal symptoms*

PREMARIN effectively relieves vasomotor symptoms, such as hot flashes. When estrogen deficiency is limited to atrophic vaginitis, PREMARIN® (conjugated estrogens) Vaginal Cream restores the vaginal environment to its premenopausal state.

The most widely used, most extensively studied estrogen worldwide.

PREMARIN®

(Conjugated Estrogens Tablets)

Most trusted for more reasons

*PREMARIN is indicated for moderate-to-severe vasomotor symptoms.

Please see following page for brief summary of prescribing information.

For moderate-to-severe vasomotor symptoms

PREMARIN®

(Conjugated Estrogens Tablets)

PREMARIN 0.3
PREMARIN 0.625
PREMARIN 0.9
PREMARIN 1.25
PREMARIN 2.5

0.3 mg 0.625 mg 0.9 mg 1.25 mg 2.5 mg

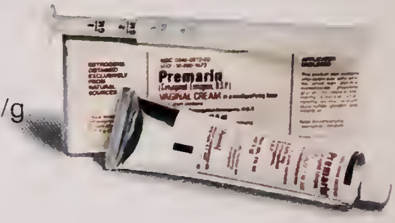
The appearance of these tablets is a trademark of Ayerst Laboratories.

For atrophic vaginitis

PREMARIN®

(Conjugated Estrogens)

Vaginal Cream
0.625mg/g



BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA.

Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4 5 to 13.9 times greater than in nonusers The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY.

The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4 7-fold increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0 9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0 625 mg conjugated estrogens per gram

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions) **Osteoporosis (abnormally low bone mass).** Atrophic vaginitis. Kraurosis vulvae Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important, product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions. 1 Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (See Boxed Warning). 4 Undiagnosed abnormal genital bleeding 5. Active thrombophlebitis or thromboembolic disorders 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans. (See Boxed Warning) At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility There is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement, it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use They should be used with caution in patients with cerebral vascular or coronary artery disease Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives For this reason, diabetic patients should be carefully observed Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a Increased sulfobromophthalein retention.

b Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability

c Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.

d. Impaired glucose tolerance.

e Decreased pregnanediol excretion

f. Reduced response to metyrapone test.

g Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives. breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating, cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2. *Given cyclically*· Female castration. Osteoporosis. Female castration—1 25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control Osteoporosis —0.625 mg daily Administration should be cyclic (eg, three weeks on and one week off).

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three-to-six month intervals.

Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

References:

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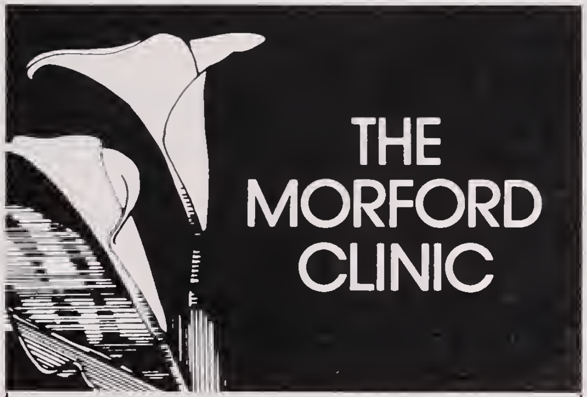

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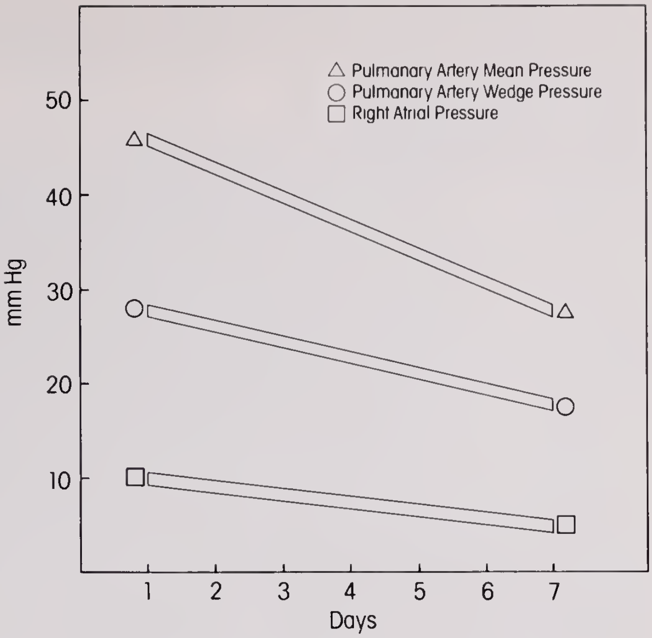

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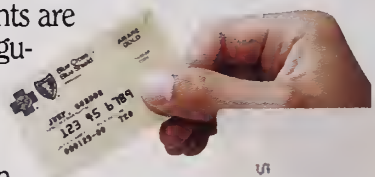

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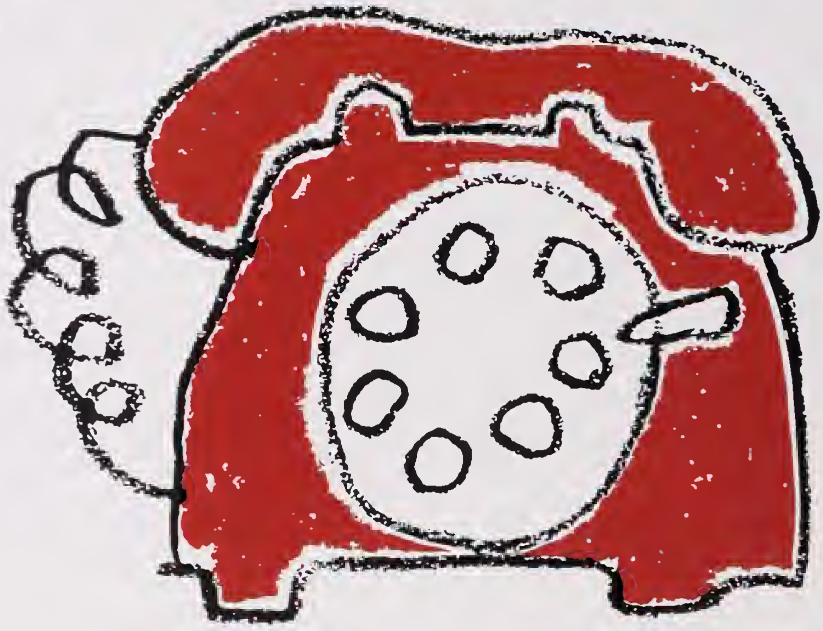

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Cover Photograph

Frosted Flower

George N. Rysgaard, M.D., took the cover photograph early one morning in Longville, Minnesota.

Dr. Rysgaard is now retired after 36 years of medical practice in Northfield. A long-time natural history photographer, he continues to pursue his interests in photography and other hobbies.

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CELLULAR ONE–SECOND TO NONE

editor's notebook

Sides (and asides) on Malpractice in Minnesota: An Introductory Brief to this Issue

What should a state medical journal do in troubled times?

If you don't consider these troubled times, take four turbulent issues that threaten physicians and society—the professional liability crisis, the AIDS epidemic, the Medicare mess, and the ethics of who gets care with limited resources. These problems have caused more than one of us to lose sleep and to fret about our future.

chard L. Reece, M.D.

Your only choice, if you're an editor with limited resources for your own journal, is to take the issues one at a time. Together they'll overwhelm you. In this issue, we tackle the medical professional liability problem. As with most broad-based problems, this one has many sides:

- It has a personal side (who among us doesn't react with personal indignation followed by a sinking sensation, when our patient's attorney slips a summons under our door);
- It has an emotional side (my blood boils when I conjure up visions of predatory attorneys cajolling and too often persuading sympathetic juries to present life-time awards for imperfect births; after all, who can control conception, gestation, and delivery, and assure a perfect birth every time?);
- It has a nostalgic side (what ever happened to the good old days when you could treat patients as friends rather than potential enemies?);
- It has an economic side (it takes 3.5% of U.S. doctors' gross income);
- It has a societal side (it places a heavy burden on America's liability insurance system. In 1986 average jury verdicts for medical malpractice suits surpassed the $1 million mark, compared with $230 thousand ten years ago);
- It has a rational side (by practicing the art of "risk management" and "defensible medicine," you can minimize risks by anticipating, documenting, and defusing risks);
- And it even has a positive side (if only you take constructive steps to practice "quality medicine" and to adjust your attitude to strip away any sign of arrogance, you can dramatically reduce your chances for a suit).

To cover these sides (including our backsides), we have assembled inside and outside experts to contribute to this issue of *Minnesota Medicine* and we have tried to do so in a variegated fashion.

Dr. James Knapp reminds us in his "President's Letter" that there's nothing new under the sun—Minnesota physicians of 1876 also had to face up to the malpractice problem, although we hope today's solutions are more innovative.

In the "Perspectives" section, Dr. David Ellison tells us firsthand what it's like to be sued; Dr. Thomas Ducker says doctors could be learning from each other's mistakes—if they could talk about them; Dr. Mitchell Karlan suggests we need a cure for arrogance in medicine; and Dr. Robert Flom entreats physicians to stick to their ideals.

A featured interview with psychiatrist Sara Charles relates how the very personal trauma of a malpractice suit traumatizes all of medicine.

Attorney and R.N. LuAnn Brenno explains that "defensible" not "defensive" medicine is good medicine.

A roundtable of experts—two M.D.s, a Minnesota Medical Insurance Exchange principal, a clinic manager, and a defense attorney—circle around the questions (which is not the same as circling around the wagons) of what physicians ought to do to help themselves.

Dr. Gordon Mosser says we can use proven techniques to assure quality.

Carol Kaemmerer, formerly of the Minnesota Medical Association and now a private consultant, returns to *Minnesota Medicine's* pages and uses MMA data to describe the scope and magnitude of professional liability problems among Minnesota physicians.

And *Minnesota Medicine* editors provide you with a brief update on tort reform efforts underway at our state's legislature.

As you read, keep Mark Twain's immortal words about Richard Wagner's music clearly in mind: "It isn't as bad as it sounds."

Richard L Reece MD

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president's letter

Handling the Age-Old Malpractice Threat

"We have seen the enemy, and they is us."
Pogo (creation of cartoonist Walt Kelly)

In his presidential address before the annual meeting of the Minnesota State Medical Association in 1933, N. O. Pearce, M.D., turned back the pages of time to the 1870s to discover the concerns of the Association's founders. He notes:

mes F. Knapp, M.D.

"Malpractice suits flourished during this period and there was much concern over the unsympathetic attitude of the public. A committee was appointed to study this matter and reported somewhat as follows: First, that in cases where there was an accident which probably meant the reduction of a dislocation or fracture a physician should refuse to answer a call unless he knew that the party injured was honest and reliable. The second suggestion was that the physician require the patient to give in writing an agreement that he would in no way hold the physician responsible for any untoward results. The third suggestion was that a plaintiff in suing a physician for malpractice should be required to put up a bond which would cover all of the expenses to the physician in defending the case. The fourth suggestion, and the one which I'm sure we all wish might be adopted today, was to have legislation enacted which would require that all malpractice suits should be tried before a jury of reputable physicians. In reading the Transactions it becomes apparent that the attitude of the public was not at all friendly to the physicians and as there were apparently no insurance companies who were writing insurance for the protection of physicians in malpractice suits, you may be sure that this presented a serious problem. In the minutes of the Society at the meeting in 1876 we find the rather unique resolution:

'Resolved, that in the experience and observation of the Minnesota State Medical Society shortening in all fractures even under the most careful treatment known to the profession is the rule and normal integrity in the restoration of the length of the injured bone is the exception.' "

Dr. Pearce, in his address, did not comment further on this particular topic, but I shall. In 1987, more than 100 years later, malpractice suits continue to "flourish" and much concern remains over the public's "unsympathetic attitude."

Today, we call the problem a crisis—a professional liability crisis—and we are fighting on many fronts to resolve it. We live in a litigious society that holds unrealistic expectations of the medical profession and with a civil justice system that often overcompensates individuals for unavoidable misfortune.

While these are all factors in the emerging professional liability crisis, we must remember that malpractice claims and lawsuits are also filed because there is malpractice.

Fortunately, we know a great deal more about practicing good medicine than physicians did in 1876. Besides more advanced technology and greater understanding of medical science generally, we have identified strategies and styles of practice that will help prevent patient injury and provide more efficient and effective care—techniques that will also help prevent lawsuits and increase the likelihood of a successful defense if a lawsuit does arise. These strategies go by name of "risk management." They are not defensive actions designed to satisfy insurance companies or simply mechanisms for preventing claims, they are a means of assuring good patient care.

This issue of *Minnesota Medicine* looks at some of these techniques, including good communication between doctor and patient as well as between and among doctors and their staffs; good and accurate documentation and recordkeeping; and overall means of assuring quality medical care.

Many of these techniques may seem to be small, inconsequential details but all are procedures and practice styles we should be following always. As Dr. Paul Sanders comments later in this issue, it's time we looked at our own house.

James F. Knapp MD

James F. Knapp, M.D., President
Minnesota Medical Association

perspectives

Fear

David Ellison, M.D.

Dr. Ellison is an emergency physician living in Pelican Rapids, Minnesota.

Illustration by Kathleen Berntson

I was pretty sure a snowmobile could outrun a buffalo in the straightaway but that wasn't the situation in which I found myself. While I would have to turn my machine 180 degrees before accelerating away from them, the three bulls eyeing me truculently from 30 yards down the road could simply charge. Several tons of obviously unfriendly muscle, bone, and horns focused my mind wonderfully on the problem at hand. The options were limited: continue in the direction we were traveling, past the herd of buffalo, or backtrack 40 miles to the nearest shelter. We were low on fuel. The sun was setting and it was noticeably colder. I eased ahead. The animals glowered, immobile. Slowly I moved forward another 10 feet. I was trying to estimate how long it would take to climb a nearby pine in my snowmobile suit, when they turned and began moving away, at first with great dignity and then with an ungainly gallop.

That night in a restaurant over baked halibut we considered the question of fear. Had we experienced anything comparable to today's confrontation? I had, but I kept it to myself and talked instead of rock climbing and contact sports. The fear involved in being sued for malpractice is not something one talks about over dinner, or anywhere else. It's different, somehow tainted with shame and anger, and is much worse than what had happened that afternoon. The incident with the buffalo was straightforward and clean. I was trying to keep my family safe, and the animals were doing the same. There was no malice involved despite the snorting and threatening postures. In contrast, the malpractice suit, replete with friendly smiles and impeccable attire, constituted the most vicious attack on my integrity and self-esteem I've ever experienced. I was publicly accused of doing irreversible damage to another man. My professional reputation, essential to my ability to support my family was threatened. In the face of this threat there was nothing I could do. There were no trees to climb, no decisions to make. My only option was to cooperate passively with my attorneys and to endure. This loss of any sense of control over my life was one of the most frightening aspects of my predicament. For over a year the spells of acute anger and fear were relieved only by a diffuse anxiety, a feeling that something not quite remembered was very wrong. I knew that the care I had given was the best possible, but it was difficult not to assume that there must be some basis in fact for the allegations. Worst was the fear that perhaps those competent-looking attorneys were right, that I might somehow be responsible for the plaintiff's pitiful condition. The fact that it remained unspoken, unshared, and unexamined made it all the more painful. To admit to it, even to myself, was to admit to the possibility of guilt, to the possibility of having destroyed another human being.

Vindication, when it came, was swift and sweet. The jury brought back a unanimous verdict of not guilty. It was over, I thought. The memories fade slowly but not completely. I now see some patients as potential plaintiffs rather than as fellow humans in need of assistance. I watch silent anxious colleagues enduring legal ordeals similar to mine. But it's not over, it could happen to me again, it's happening to friends right now. The fear of malpractice litigation is still very real. For me, the choice between another confrontation with a hostile herd of bison or with a polite plaintiff's attorney would be an easy one.

Looking for a chance to talk about mistakes

Thomas B. Ducker, M.D.

Dr. Ducker is a neurosurgeon and a freelance writer living in Annapolis, Maryland.

Every day, newspapers do something I dare not do; they admit their mistakes. More than that, they correct them.

I can only envy the paper its ability to correct and make whole. I am a neurosurgeon, and my mistakes are often permanent.

Because of that I strive, as do most of my colleagues, to be as nearly perfect as I can be. I read the journals of my profession to keep up with the latest advances, and I share my own techniques and discoveries at professional conferences. But I no longer admit my mistakes to anyone, and this is a loss both to me and to my profession.

One of the most useful traditions in all of medicine was the so-called mortality and morbidity conference, where physicians would freely discuss cases with bad outcomes—patients who died, or who were made sicker by their treatment.

M-and-M conferences were valuable not only as catharsis, but as an opportunity to learn, both from one's own mistakes and from the mistakes of others. Such conferences were well-attended, honest and frank discussions of what went wrong, why and how it went wrong, and how to prevent the same thing from happening in the future. It was a benefit both to physicians and to their patients.

Accreditation rules still require hospitals to hold these meetings, and physicians do still attend them, but now the discussions are sullen and unproductive, because any mistake, no matter how innocuous, is lawsuit material.

No matter that these meetings are, by law, confidential: On at least two occasions that I know about, minutes from such meetings have leaked and lawsuits have followed. And so the malpractice crisis builds, and physicians become ever more defensive about what they do.

> *"If we physicians exchange only information about our successes, we build a false picture of a perfect discipline and guarantee our slightest error will bring a lawsuit."*

This can only be to medicine's ultimate harm; if we physicians exchange only information about our successes, we build a false picture of a perfect discipline and guarantee that our slightest error will bring a lawsuit. So with the crisis grows the dilemma: If we talk about our mistakes, we get sued. If we don't talk about them, we get sued anyway.

This cannot go on. If the art, the craft, and the science of medicine are to progress, physicians and surgeons must be free to discuss their work and learn from their mistakes.

Unlike many of my colleagues, I do not believe that a cap on jury awards is the answer. Apparently the actuaries don't believe that either: After my state enacted such a cap, my malpractice-insurance rates went up, not down.

I believe, instead, that we need to redefine the legal concept of shared risk. Part of the risk of any medical or surgical procedure is the risk that the doctor will make a mistake. This is a risk that the patient must be made to understand, and must be willing to accept.

Despite everything I can do to be as nearly perfect as possible, I make mistakes. I know this. I know how often I make them, and I know that I make fewer than the average neurosurgeon. But I do make mistakes.

And I can't talk about them. I can—and do—learn from them, but I can't share the lessons, or benefit from the lessons of others.

When we are hurt, we tend to lose sight of the common good. A patient who wakes up impaired is unlikely to think altruistically about the future of medicine. Likewise, a surgeon who has been sued several times—even if the suits have been unsuccessful—becomes wary of discussing his or her business with others.

Somehow we must begin to restore the relationship of trust that once existed between doctor and patient, and between doctor and doctor. Otherwise, today's troubles will pale against the grief that awaits medicine in the future.

Reprinted from the *Baltimore Evening Sun*, January 26, 1987.

Arrogance: a malaise that needs a cure

Mitchell S. Karlan, M.D.

Dr. Karlan, a surgeon specializing in oncology in Beverly Hills, is president of the Los Angeles County Medical Association.

Arrogance is defined as a feeling of superiority manifested in an overbearing manner, presumptuousness, self-importance, haughtiness, and/or insolent pride. This trait has become somewhat evident in more than a few physicians, nurses, hospital, administrators, and government bureaucrats of late.

A sign of the times is posted for all to see in the following story: Two physicians were sleeping barefoot in a tent high in the mountains when a huge bear approached and threatened to attack them. The physicians started running down the hill. One stopped to put on his tennis shoes. The other said, "You can't outrun a bear." "No," said the other, "but at least I'll be able to outrun you." I might call that the unmitigated arrogance of the new competition in medicine.

I recall an incident about six months ago when an attorney came to my office and had to wait 30 minutes before I could see her. She left in a huff. Within a few days, I received a letter in which she stated that her time as a professional was as valuable as mine and that she deserved to be reimbursed for the time spent in my office. She enclosed a bill for $100.

My initial reaction was to file the letter in the basket on the floor near my desk. I decided to wait a few days and then respond to her letter. A week later I wrote a letter, apologizing for the inconvenience but explaining that exigencies do occur frequently in a surgeon's office that require a priority response. We cannot run on as tight a schedule as we would like, I added. I agreed that she was entitled to reimbursement for the time lost and enclosed a check for $5. Inasmuch as she is a professional and I am a professional, I felt that I was at least entitled to a professional courtesy. Several days later the lawyer phoned, apologized for her letter, and asked if she could return as a patient. I agreed, and our relationship has continued to improve since that incident, to which I could have reacted with arrogance instead of with leveling humor.

Physician arrogance does indeed apply to physicians who routinely keep patients waiting interminably. Indeed if you are unfortunately detained, have the good grace to apologize and explain to the patient when you enter the examining room. Arrogance is also not listening, not giving undivided attention to medical complaints, not calling a patient or colleague with a report they are anxious to receive, and not responding to repeated patient calls. Arrogance is allowing bad manners to prevail.

I recently wrote an article on medical marketing and listed the four A's—ability, affability, availability, and affordability—required of a physician to build and keep a practice. Another "A," arrogance, is certainly not one of them.

A former colleague did a colonoscopy on a patient and recommended surgery to remove a cancer found in the colon. The patient stated that she appreciated the early detection and would let him know her decision later that day.

The patient and her family were old and dear personal friends of mine, and with surgery indicated, they asked if I would please handle the case. I called the original surgeon and told him that the patient and family requested my involvement. His comment was, "Tell her I never want to see her or her family again. Tell them that I am as good as anyone."

This type of arrogance only shows immaturity and insensitivity to our basic code of medical ethics in supporting the patient's desires and the right of free selection of his or her own physician. There was no discussion of competence. It was the wish of a patient and her family. We all have referred patients whom we saw in consultation back to the original physician. The insolent pride manifested in this case was completely unwarranted. *(cont.)*

The four A's required of a physician to develop a practice are ability, affability, availability, and affordability .... Another 'A,' arrogance, is certainly not one of them.

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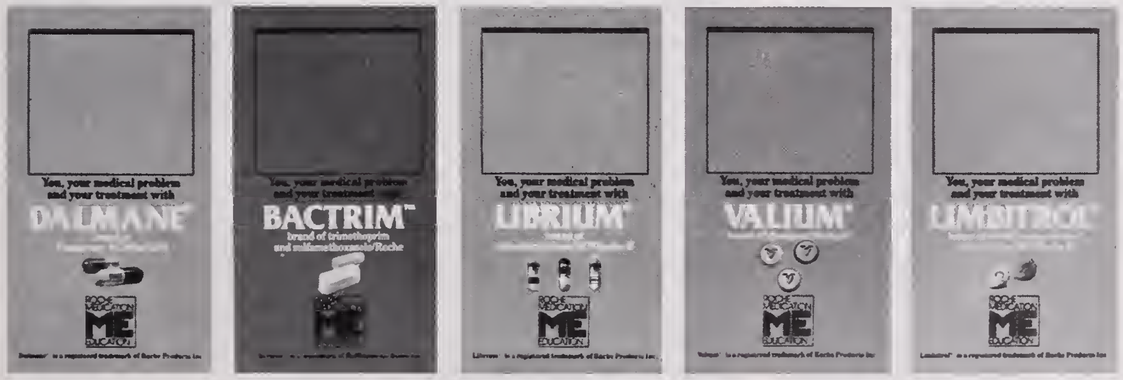

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I see another type of arrogance: the fees charged by the relatively few highly technical specialists who perform procedures in a very brief period of time—usually a half hour or less—and schedule a half dozen or more in a single morning. The fees they charge—$1,500 to $2,500—distort the conception of physician income to a very negative faretheewell. Futhermore, these practitioners refuse to see the handwriting on the wall, refuse to accept the reality that they are unduly resisting cost containment and are essentially responsible for some of cost control that is being imposed on all physicians. The truth is all physicians are now paying the piper for the distorted charges and abuses by only a small percentage of the profession. Those who oppose achieving some kind of equity in physicians' fees are shortsighted, selfish, and guilty of the arrogance of inappropriate reimbursement.

The physician-nurse relationship is another relationship that requires mutual trust and respect. Nurses are as integral to medicine as physicians, and they should not be relegated to subordinate positions. They should not have to suffer the abuse that some have received from a few of our colleagues. The physicians who rant and rave at the slightest inattention or throw charts or tantrums can disrupt the harmony and *esprit de corps* throughout a hospital unit. Nurses are sensitive and responsive to appreciation and respect for a job well done. The courtesy and respect you get is dependent not on your position as a physician, but on your ability, your dignity, and consideration and respect you have for nurses as professionals.

We have to recognize that there are nursing shortages in many hospitals because of budget cuts resulting from a low census and reduced third-party government hospital payments. This frequently leads to overwork, to increased pressure on the nurses, and to an atmosphere of tension, distrust, and poor communications. Insensitivity or indifference to reality is another form of arrogance.

However, occasionally, incidents do occur that are intolerable. I was operating last month and asked the circulating nurse to please call the emergency room and tell them that I would see a patient there in 30 minutes. Her response—arrogant in its own way—was that it was not the duty of a circulating nurse to make this type of phone call. But she agreed to relay the message to the secretary at the desk. However, the secretary was not available. The nurse still refused to make the call. This too is a kind of arrogance we must eliminate.

"Insensitivity or indifference to reality is another form of arrogance."

The Texas legislature recently passed a law stipulating that all emergencies must be handled in all hospital emergency rooms regardless of a patient's financial status. Furthermore, the hospital cannot transfer the patient without full informed consent by the patient. This utopian arrogance is marvelous . . . for the patient. But nowhere in the legislation is there a provision to at least give some reimbursement to a hospital for caring for a completely indigent patient.

The federal government has announced that it will cut the Medicare budget by $55 billion in the next five years. The bulk of the cuts are to be achieved by squeezing payments to physicians, hospitals, and other providers. This administration lives in a dream world, expecting physicians to continue providing accessibility, availability, quality of care, equity for patients, and more and harder work for less, while it refuses to raise taxes and continues to increase spending for defense. We need a ceiling on political arrogance.

Arrogant regulations by the Department of Health and Human Services were issued in January 1984. (The Supreme Court has since overturned the rules, and the government has not decided whether it will attempt to rewrite the regulations.) The Baby Doe rules ensure that handicapped newborns will receive *all possible life-sustaining treatments* without regard for the quality of their lives or the opinions of the attending physicians, family, or involved clergy. Judgments are rendered only with the thought in mind of preserving length of life without consideration of whether a particular treatment has any real benefit to the newborn, or whether forced, continued, prolonged pain and suffering will occur. These lives must be maintained, if at all possible, at all costs by edict of a heavy-handed government that sees fit to impose its judgment in situations that belong to parents, family, attending physicians, and clergy. The same common sense ground rules should prevail in this age group as with adults. Call that bureaucratic arrogance.

I am reminded of a story I heard: A reporter asked a physician which was worse, ignorance or apathy. The physician answered without hesitation, and loudly, "I don't know and I don't care."

You diagnose that strain for yourself. I am sure you'll agree with me it is a malaise we should all try to cure, especially when we are personally afflicted.

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In search of remedies to the malpractice liability crisis

Robert S. Flom, M.D.

Dr. Flom, Chairman of the Board of Minnesota Medical Management, Inc., is a past-president of the MMA and is a general surgeon in private practice.

Despite enormous technological advances in the diagnosis and treatment of human ailments, malpractice claims and suits continue to increase in frequency and severity. Currently, 1 in 8 Minnesota physicians can expect to have a claim or suit entered against him or her in any year, compared with 1 in 11 just six years ago. The size of jury awards nationally has grown even more drastically, from $404,726 in 1980 to $954,858 in 1984.

The reasons for these dramatic increases are complex, meaning the solutions are not simple either. Society espouses the right of every citizen to quality health care. Unfortunately, many individuals have interpreted this as the right to freedom from disease or the right to be cured of all ailments. Plaintiffs' lawyers, regarding themselves as the champions of all disadvantaged people, vigorously pursue remedies for those who feel aggrieved. Concurrently, many physicians (and others) believe that our system of dispute resolution has gone too far in providing remedies.

Societal attitudes are impossible to legislate, and judicial systems and procedures are not easily changed. Still, changes in the civil justice system have been widely advocated in this country and indeed some were enacted in Minnesota last year. These reforms do not instantly effect change and their impact is very difficult to measure precisely. Rational analysis, however, would predict these changes will alleviate some of the financial strain of professional liability.

Meanwhile, Minnesota physicians practice in an environment where the pressures to cut costs have postured them as cornered defenders of their medical judgment. Third-party payers and benefit managers of large companies have tightened payment mechanisms to the point where they threaten the delivery of top-notch medical care. Health plan managers often peddle health care as a commercial commodity, and patients often select a delivery system on price alone. In the wake of these competitive forces, it takes a strong physician to remain dedicated to the ideals that drew him or her to this profession.

Yet, physicians must remain dedicated to these ideals to weather the malpractice storm. The ancient caveat "First do no harm" assumes the possession of thorough knowledge of disease and injury as well as an understanding of the benefits and risks of each modality used in diagnosis and treatment. But more than that, physicians must have the perceptive skills to understand patients' thoughts and emotions; they must have the communication skills that will help forge a mutually respectful bond with the patient.

Vigilance for patient safety reduces injury. A paper trail of a patient's complaints, the objective findings demonstrated, and the rationale for decisions made on the patient's behalf enhance the defense against accusations of wrongdoing. Dedicated professionalism in its highest sense reduces claims.

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The costs of malpractice litigation

Editor's Note: Sara C. Charles, M.D., is an associate professor of clinical psychiatry at the University of Illinois Medical School at Chicago and a psychiatrist in that city. Co-author of "Defendant: A Psychiatrist on Trial for Medical Malpractice," Dr. Charles has experienced firsthand the personal and professional impact of malpractice litigation. Professionally, she has treated doctors being sued for malpractice and has conducted research on its costs to individual physicians, the medical profession, and society. Following are some of the thoughts Dr. Charles shared with Minnesota Medicine *in a recent interview.*

MINNESOTA MEDICINE: Dr. Charles, you have dedicated a lot of your time to addressing the effects of medical malpractice from an angle not many other people have explored. Can you describe your own view of the problem?

CHARLES: As a psychiatrist, my primary interest has been trying to identify an area that isn't discussed as much as the economic side—that is, the non-economic repercussions of malpractice litigation. Although the non-economic repercussions of litigation do have long-term economic outcomes. For instance, if you have fully trained physicians who aren't doing certain things that they know how to do and are competent to do, then there is some loss to society.

MINNESOTA MEDICINE: How did your own experience direct your interest?

CHARLES: As a practicing psychiatrist, I had operated under the orientation that if you try to practice good medicine, you don't worry about things. So I didn't worry about things. And I got sued. I felt that the case had no merit and wanted very much to go through the whole litigation process in order to vindicate myself. What struck me most was the evidence that doctors all over the place were being sued and nobody was saying anything about it. That did not seem to be the way to solve the problem.

MINNESOTA MEDICINE: Other physicians have made similar comments: "Doctors don't talk to each other about malpractice suits; there's no real support from colleagues." Why is that?

CHARLES: There's an understandable reason for that. When you're accused of malpractice you're accused of not being a good doctor, and that is very disturbing to a physician. It takes many years to become a physician, and all the while you are in training, your professional life becomes very integrated with your own sense of self, your own person. Medicine is a very unique kind of work, whether people want to believe that or not. It occurs within the context of an interpersonal relationship and it deals with the most critical phases of anyone's life—birth and death, illness, chronic illness, acute illness, acute injury—all those threatening and highly emotional events in people's lives. The demand on the physician is to respond in a technically competent way but also in an emotionally supportive way. That's an enormous demand on an individual. It's very threatening when someone says you are no good at what you do, when in many cases you did the best you could, as a matter of fact, the best anyone could do, and then you get called into court. Remember this is not just a one-time event. It's not just somebody calling you a name and that's the end of it. It's the start of a process that lasts many many years.

Sara Charles, M.D.

MINNESOTA MEDICINE: Certainly professional liability isn't physicians' problem alone. What elements of the problem are unique to physicians?

CHARLES: From my orientation I see the basic problem as a philosophical one. This is an American problem. It's not a problem of American medicine, it's not a problem of American law, it's an American problem. Ever since Kennedy's death, American's have had an ambivalent attitude toward authority. Think about how ambivalent so many Americans are about their own parents. How do you expect them to be about one of the major authority figures in society—physicians? Physicians are authority figures, they have knowledge nobody else has. Medicine is always changing. This is what doctors understand. The public doesn't understand that.

People are saying they want doctors to be human. "You're just like us, we want you to admit all your faults. Except in reference to me, then you'd better not make any mistakes. You better be good." People don't want us to be human in a way that means we can fail.

At the same time, Americans doubt anyone who has competence—they are suspect of the experts. They want you to be experts; they want you to be *super*-experts. They then want to say, "It's my decision unless something goes wrong, then you're responsible."

My thought about liability being a national problem, which indeed it is, is that the liability facing physicians is different from the liability of all the municipalities, all those other kinds of product liabilities, again because of the public's expections. They expect physicians to be personally responsible for their work in a way that they don't expect the playground maker to be. That is, if the maker of the slides in the playgrounds has a lot of money, then you sue for a lot of money. It's just part of the business. The responsibility of the professional is felt to be very different, and the public's expectations are quite different.

MINNESOTA MEDICINE: Having gone through the whole malpractice litigation process and studying its effects professionally, do you have a primary message you try to share with other physicians?

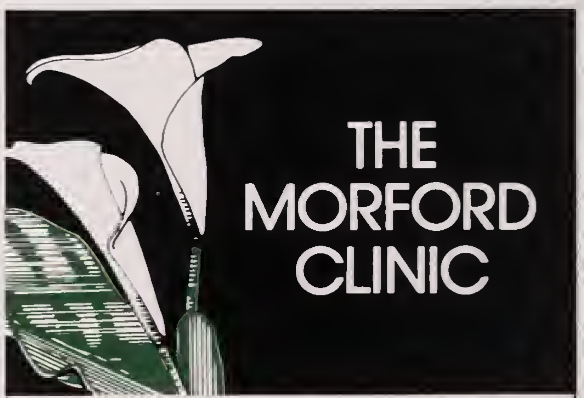
CHARLES: One of the basic messages I have often given to physician groups is that the public has a common perception that we're finally cleaning up the profession, we're getting the bad doctors. But we have to look at the national statistics, which show that one out of four physicians per year gets sued, and ask, "Are we getting the bad doctors?" When we look at the outcome of the suits, we find that very few of these physicians are proven negligent. My basic message is that our present system is getting the *good* doctors and we have to try to understand what impact this is having on those good physicians, the best physicians, as a matter of fact.

MINNESOTA MEDICINE: Why do you say the best?

CHARLES: It's the people who take the highest risk patients who get sued for malpractice. The best physicians are always developing their own skill, and in order to do that they have to have freedom. Freedom to make a mistake. When you have a terrible catastrophe, which happens a lot in clinical medicine, you have to be free to make any decision you can based on your knowledge, your competence, your experience, your own sense of risk, and your own self confidence. Many doctors have done just that, and they have been dragged into court for it. In the end, these doctors say, "I'm not going to get that risky any more." There's something very wrong about that system.

MINNESOTA MEDICINE: In Minnesota, one in eight physicians can expect a suit to be filed against them in any year. Would you expect these physicians to experience some common reactions?

CHARLES: Oh yes, the main thing is anger. They will be very angry. It's a very disrupting, shocking experience, and for many physicians it's the most stressful experience of their entire life because it's an assault on their integrity. Many of the physicians who have this experience say they are changed. One of the major changes is their relationship with their patients, their feelings about their patients. A trust has been broken—and not just with that one patient. It's very hard for these physicians to work back into trusting all patients. The important thing to point out here is that if one out of eight physicians in Minnesota is being sued every year, within a very short period of time all of them, technically speaking, will get sued. That means that all of them will be reacting to patients with less trust.



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A recent double-blind, placebo-controlled, crossover study in 138 hypertensive patients[2] revealed that INDERAL LA has a side effects profile unsurpassed by atenolol or metoprolol—which shows how well-tolerated once-daily INDERAL LA can be.

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The patients in the nationwide compliance trial were no different from yours. Generally when the antihypertensive regimen is complicated, compliance may become a problem. So, the effectiveness of INDERAL LA as once-daily monotherapy is a big plus. Of the remaining hypertensives in the program, 36% were controlled merely with the addition of a diuretic to INDERAL LA.

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Almost 20,000 of the patients in the nationwide compliance trial were identified as having been noncompliant with their previous antihypertensive therapy. Their physicians reported that 88% showed improved compliance when placed on once-daily INDERAL LA.

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ONCE-DAILY

INDERAL® LA

(PROPRANOLOL HCl) LONG ACTING CAPSULES

Like conventional INDERAL Tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

The one you know best keeps looking better

Please see next page for brief summary of prescribing information

The one you know best keeps looking better

BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION SEE PACKAGE CIRCULAR)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride Inderal LA is available as 80 mg 120 mg and 160 mg capsules

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites When access to beta-receptor sites is blocked by INDERAL the chronotropic inotropic and vasodilator responses to beta adrenergic stimulation are decreased proportionately

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol resulting from the slower rate of absorption of propranolol Over a twenty-four (24) hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

The mechanism of the antihypertensive effect of INDERAL has not been established Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain Although total peripheral resistance may increase initially it readjusts to or below the pretreatment level with chronic use Effects on plasma volume appear to be minor and somewhat variable INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure and the velocity and extent of myocardial contraction Propranolol may increase oxygen requirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity

In dosages greater than required for beta blockade INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential The significance of the membrane action in the treatment of arrhythmias is uncertain

The mechanism of the antimigraine effect of propranolol has not been established Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain

Beta receptor blockade can be useful in conditions in which because of pathologic or functional changes, sympathetic activity is detrimental to the patient But there are also situations in which sympathetic stimulation is vital For example in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved In the presence of AV block greater than first degree beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

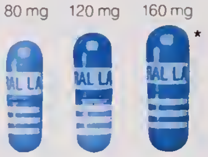
Propranolol is not significantly dialyzable

ONCE-DAILY

INDERAL® LA

(PROPRANOLOL HCl)

LONG ACTING CAPSULES



INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension, it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina, palpitations, and syncope INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can in some cases, lead to cardiac failure Therefore at the first sign or symptom of heart failure, the patient should be digitalized and or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually if possible)

> IN PATIENTS WITH ANGINA PECTORIS there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of INDERAL therapy Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e g dobutamine or isoproterenol However, such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers

DIABETES AND HYPOGLYCEMIA Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes In these patients, it may be more difficult to adjust the dosage of insulin

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism including thyroid storm Propranolol does not distort thyroid function tests

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case, this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. *General* Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

Clinical Laboratory Tests Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase alkaline phosphatase lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia vertigo, syncopal attacks, or orthostatic hypotension

Carcinogenesis, Mutagenesis, Impairment of Fertility Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice employing doses up to 150 mg kg/day, there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

Pregnancy Pregnancy Category C INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

Nursing Mothers INDERAL is excreted in human milk Caution should be exercised when INDERAL is administered to a nursing woman

Pediatric Use Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular bradycardia congestive heart failure, intensification of AV block, hypotension paresthesia of hands, thrombocytopenic purpura arterial insufficiency, usually of the Raynaud type

Central Nervous System lightheadedness, mental depression manifested by insomnia lassitude, weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea constipation mesenteric arterial thrombosis ischemic colitis

Allergic pharyngitis and agranulocytosis, erythematous rash fever combined with aching and sore throat laryngospasm and respiratory distress

Respiratory bronchospasm

Hematologic agranulocytosis nonthrombocytopenic purpura, thrombocytopenic purpura

Auto-Immune In extremely rare instances, systemic lupus erythematosus has been reported

Miscellaneous. alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg for mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION—*Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS—*Dosage must be individualized* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued reduce dosage gradually over a period of a few weeks (see WARNINGS)

MIGRAINE—*Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimum migraine prophylaxis If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

*The appearance of these capsules is a registered trademark of Ayerst Laboratories

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REFERENCES:

1. INDERAL LA National Compliance Evaluation Program Data on file, Ayerst Laboratories
2. Ravid M Lang R Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol atenolol and metoprolol given once daily *Arch Intern Med* 1985, 145 1321-1323

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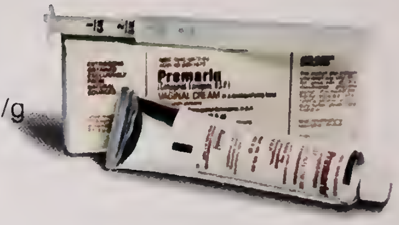

BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream in a nonliquefying base

> 1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA.
>
> Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.
>
> 2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY.
>
> The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4.7-fold increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) **Osteoporosis (abnormally low bone mass).** Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (See Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans. (See Boxed Warning.) At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility. There is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention.

b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.

d. Impaired glucose tolerance.

e. Decreased pregnanediol excretion.

f. Reduced response to metyrapone test.

g. Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme; erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism; steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria; edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2. *Given cyclically:* Female castration. Osteoporosis. Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control. Osteoporosis —0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off).

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three-to-six month intervals.

Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

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Defensible medicine: an effective response to the malpractice liability crisis

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In response to the malpractice litigation crisis, physicians are practicing what has been termed "defensive medicine." A more effective response is to practice "defensible medicine." This article discusses some of the components of defensible medicine that will reduce the risk of malpractice liability.

The American Medical Association (AMA) has defined "defensive medicine" as the performance of diagnostic tests and treatment procedures which, but for the threat of a malpractice action, would not have been performed.[1] Defensive medicine serves primarily to validate clinical judgments in which the physician already has adequate confidence. Additional tests, procedures, and records are believed to be necessary to withstand the scrutiny of a plaintiff's lawyer pursuing a malpractice claim.[2] The AMA estimates that defensive medicine adds approximately $15 billion to the annual cost of health care in the United States.[1]

The Association of Trial Lawyers of America asserts that defensive medicine is merely careful medicine that results in improved health care and therefore should be encouraged.[3] To the extent that defensive medicine constitutes unnecessary treatment, it is unethical and cannot be excused by claims that it is practiced in response to the threat of malpractice litigation.[3]

There is no agreement on the definition or cost of defensive medicine, nor has the practice of defensive medicine had much impact on the malpractice liability situation. Thus, defensive medicine is not a very useful response for individual physicians seeking to practice medicine in a manner that will reduce the potential for malpractice liability. A more effective means of reducing malpractice liability and improving patient care is to practice defensible medicine. Defensible medicine can be defined as those practice patterns that will reduce the potential for malpractice claims and increase the likelihood that claims that do arise can be successfully defended.

Medicine Meeting the Standard of Care

First and foremost, defensible medicine means good medicine; that is, diagnosis and treatment that is consistent with the standard of care. Successful malpractice claims will be reduced if the standard of care is met.

What is the standard of care? The legal definition of the standard of care can be stated most clearly by reference to the jury instruction setting forth the duty of a physician to his or her patient. In a malpractice case, after all the evidence has been presented on behalf of both the plaintiff and defendant, the jury will be given the law as follows:

> **"In performing professional services for a patient, a physician must use that degree of skill and learning which is normally possessed and used by physicians in good standing in a similar practice and under like circumstances. In the application of this skill and learning, the physician must also use reasonable care."[4]**

This legal definition essentially means acceptable medical practice. Because expert testimony is required in all but the most clearcut cases of malpractice, the standard of care is defined by other physicians. Thus, in attempting to determine what the standard of care requires, the physician should consider whether his or her colleagues would find the chosen treatment method to be acceptable medical practice.

The jury instruction continues:

> **"The fact standing alone that a good result may not have followed from the treatment by a physician is not evidence of negligence or unskilled treatment.**
>
> **A doctor is not negligent simply because his or her efforts prove unsuccessful. The fact that a doctor may have chosen a method of treatment that later proves to be unsuccessful is not negligence if the treatment chosen was an accepted treatment on the basis of the information available to the doctor at the time a choice had to be made. A doctor must, however, use reasonable care to obtain the information needed to exercise his or her professional judgment, and an unsuccessful method of treatment chosen because of a failure to use such reasonable care would be negligence."[4]**

A bad outcome will not subject the physician to liability for malpractice in the absence of evidence that the physician deviated from the standard of care. The standard of care does not require perfect treatment nor treatment that all other physicians would provide. It only requires acceptable treatment as ultimately defined by expert physician testimony.

If the standard of care is met, the likelihood of injury to the patient is reduced, the potential for an acceptable outcome is increased, and malpractice liability is unlikely. If a malpractice claim is asserted, the potential for a successful defense is greatly increased.

Medicine that is consistent with the standard of care, and defensible, also means medicine that is within the physician's scope of practice and expertise. This concept includes the judicious and timely use of referral and consultation. The physician's duty to refer is defined by a jury instruction that succinctly sets forth what the standard of care requires:

> "If a physician engaging in general practice, exercising ordinary skill and care possessed and applied by physicians engaging in general practice discovers or should know or discover, that the patient's ailment is beyond his or her knowledge or technical skill, or ability or capacity to treat with a likelihood of reasonable success, he or she is under a duty to disclose the situation to his or her patient, advise the patient of the necessity of other or different treatment, and refer the patient to a specialist. If under such circumstances, the physician engaging in general practice fails to inform the patient or refer the patient to a specialist, the physician is held to that standard of care required of the specialist."[5]

This jury instruction requires the physician to be aware of the limits of his or her expertise and to refer the patient to a specialist when those limits are reached. To meet the standard of care and practice defensible medicine, the physician must take seriously this duty to refer. It is very difficult to defend the decision not to seek consultation and referral when specialty treatment is available. Note also that the standard of care requires that the patient be advised of the situation and the necessity of other or different treatment. The duty to discuss treatment with the patient is a key component of defensible medicine and will be discussed in more detail below.

Documented Medicine

Defensible medicine means documented medicine. The medical record provides the primary vehicle for communication among health care providers. The potential for errors or omissions in treatment that lead to patient injury will be reduced by complete, accurate, and appropriate documentation of patient care. The standard of care requires that treatment be documented.

When a malpractice claim is asserted, the medical record will provide the basis for defending the treatment rendered. It is important to recognize that in most cases, an adult patient has a two-year period following treatment in which to assert a malpractice claim. After a claim has been asserted, another one to two years may elapse before the case is ready for trial. It may then be another year before the case is actually heard by a jury. Thus, it is not unusual for several years to elapse between the time treatment was rendered and adjudication of the malpractice claim. The record provides the best, and often the only evidence of the treatment rendered because after that period of time, the physician is not likely to recall the treatment provided. Even if the physician claims to remember, it is not very believable to assert that treatment was provided when it is not reflected in the record. Jurors place a great deal of credibility on the medical record because it is written contemporaneously with the treatment, is not prepared in anticipation of litigation, and is not subject to recollection over time. Thus, one of the best defenses against successful malpractice claims is complete and accurate documentation.

Rather than perform more diagnostic tests and treatment procedures to validate clinical judgments, the physician should document the basis for clinical judgments and the rationale for treatment decisions in the medical record. Such documentation will be much more useful in successfully defending a malpractice claim than the practice of unnecessary defensive medicine. The law requires only that the physician use reasonable care that is consistent with acceptable medical practice. But in order to demonstrate compliance with the standard of care, the treatment provided must be accurately and completely documented in the medical record.

Humane Medicine

Defensible medicine means humane medicine. Humane medicine means that the physician is concerned about the person as well as the patient. The physician must pay attention to the relationship with the patient as well as to the patient's condition. Humane medicine includes willingly and fully answering the patient's questions in understandable language, taking the time to get to know the patient, respecting the patient's privacy and time, responding quickly and honestly to patient complaints, and taking that extra time to sit down and explain what is being done and why. Because patients are generally intimidated by the health care system, physicians must take the lead in cultivating open and honest relationships with their patients.

Humane medicine also involves efforts to promote more realistic patient expectations of physicians and medical treatment. Many patients expect perfect results and become angry and frustrated when something less than perfection is achieved. Unrealistic patient expectations about the capability of medicine and physicians have been aptly characterized by Dr. Robert Moser as the Penicillin/Marcus Welby Syndrome.[6] With the introduction of Penicillin, pneumonia, which almost always had been fatal, became curable. The public came to expect "magic bullets" like Penicillin for all its afflictions and became angry and suspicious when cures were not forthcoming. Next came Marcus Welby, the magic doctor who always made the correct diagnosis, always had time to talk with his patients and their families to solve all of their interpersonal problems, and was available 24-hours-a-day, 7-days-a-week.[6] This is what the public has come to expect of physicians and the medical care they provide.

Physicians must take action to

dispel these unrealistic expectations. Physicians can foster more realistic expectations by sharing the uncertainties of medical knowledge and treatment and allowing patients to participate in treatment decisions. Physicians must acknowledge that there are few magic cures and even fewer magic physicians.

The most common emotion expressed by patients who seek out an attorney to explore the possibility of a malpractice claim is anger—anger because something went wrong or the result wasn't perfect and no one would explain what went wrong or why. Patients who are frustrated and angry because they feel they are being treated unfairly or that information is being withheld are much more likely to sue when the treatment outcome is different from what they expected. In many cases the physician has complied with the standard of care in providing treatment but has not communicated effectively. It is not enough to treat the patient's condition — the person must also be treated. The personal relationship between the physician and the patient must be cultivated by communicating more effectively and promoting more realistic expectations of the outcomes of medical treatment. Such treatment is humane—and defensible.

Medicine with Consent

Defensible medicine means medicine with consent. To comply with the standard of care and practice defensible medicine, the physician must obtain the patient's informed consent to treatment. The legal term for failure to obtain informed consent is negligent non-disclosure. The physician's duty to his or her patient is to disclose the nature of the proposed treatment, the severe risks and the common risks associated with the treatment, the benefits and consequences of the treatment, and the reasonable alternative treatments available with their attendant risks and benefits. Failure to do so is malpractice.

Studies have indicated that patients want as much information as is available about their medical condition, treatment, and prognosis.[7] Patients have the right to information about their health and medical condition. Open and full discussion with the patient will promote more realistic expectations and ultimately reduce the likelihood that a less than optimal outcome will result in a malpractice claim.

Discussions held with the patient to obtain informed consent to treatment must be fully and completely documented in the medical record just as any other treatment is documented. Patients forget much of what they are told by their physician due to stress, fear, or lack of understanding. Defense of a malpractice claim alleging negligent non-disclosure will be greatly enhanced when the informed consent discussion is fully documented contemporaneously with the discussion.

To comply with the standard of care and avoid malpractice liability, physicians must obtain informed consent to treatment. Treatment provided with the patient's consent documented fully in the medical record is defensible treatment.

Summary

Defensible medicine will result in better patient care as well as patient care that can be defended should a malpractice claim arise. Physicians will no longer be accused of the unnecessary and unethical practices that constitute defensive medicine. While malpractice claims may be an inevitable part of practicing medicine in today's world, physicians can reduce their potential liability by adopting defensible practice patterns. Defensible medicine, not defensive medicine, will help control what has become a malpractice liability crisis.

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Confronting professional liability: a roundtable discussion of medical risk management

Many factors are at work to shape medicine in Minnesota. Not the least of these is the changing nature of the professional liability climate. Although not as greatly affected as their peers in many other states, Minnesota physicians are beginning to make strategic decisions concerning specialty choice, practice location, and scope of practice on the basis of professional liability concerns. The emerging crisis in medical professional liability has several hallmarks: an increasing frequency and severity of claims, an increase in costs of insurance and reinsurance, and a decreasing availability of insurance.

Several solutions to this crisis exist, and include public education, tort review and reform, and improved medical risk management practices. The 1986 Minnesota Legislature (like 35 other state legislatures) has initiated some changes; many more will be introduced.

To address the problems of medical risk management, *Minnesota Medicine* assembled a panel that met on September 22, 1986. We here share their perspectives with you.

Paul S. Sanders, M.D.

The panel included:

- Paul S. Sanders, M.D. (moderator), a family physician, practices with a 22-man multispecialty group in Cambridge. He currently serves on the Board of Trustees of the Minnesota Medical Association and chairs the MMA's Interspecialty Council. Dr. Sander's interest in risk management comes from a number of areas: he serves on the American Academy of Family Physicians Committee on Professional Liability, chairs the Minnesota Medical Insurance Exchange Committee on Risk Management, and chaired the Task Force on Risk Management for the Minnesota Commission on Professional Liability in 1985.
- Mr. Richard J. Bland, an attorney with Meagher, Geer, Markham, Anderson, Adamson, Flaskamp, and Brennan, in Minneapolis, specializes in civil litigation, primarily representing physicians and hospitals in defense of medical malpractice cases.
- Mr. Richard Board is administrator of Orthopaedic Consultants, P.A., immediate past-president of the American College of Medical Group Administrators, and a member of the Minnesota Medical Insurance Exchange Committee on Risk Management.
- Ms. Elizabeth Lincoln is an attorney and manager of Risk Management for the Minnesota Medical Insurance Exchange (MMIE).
- Andrew J. K. Smith, M.D., a neurosurgeon in private practice in Minneaplis, chairs the Minnesota Medical Association Communications Committee and chaired the MMA's Task Force on Risk Management.

Defining Risk Management

SANDERS: First, I think we should address the question, "What do we mean when we speak of risk management?"

LINCOLN: From the insurance perspective, several years ago MMIE developed a three-part definition of risk management. We define it as a style of practice among physicians and all health care personnel in both the hospital and clinic setting to prevent and control patient injuries, malpractice claims, and malpractice claim losses.

BLAND: From a legal standpoint, I view risk management more in terms of quality recordkeeping and the use of certain procedures that make the defense of malpractice cases more likely to be successful.

SMITH: I believe from a physician's perspective that risk management is essentially equated with the provision of high quality medical care. There are many aspects to that, of course: maintaining good rapport with patients, maintaining technical and diagnostic skills through continuing medical education courses and medical journals, carefully documenting medical treatment, gaining informed consent, and participating on hospital medical staff committees involved in risk management, and so forth. But for physicians, the most important aspect of risk management involves treating patients and their families in much the same way physicians would wish themselves and their families to be treated.

BOARD: As a clinic administrator, I would add that our role is to have in place the policies and procedures needed to effectively reduce malpractice claims and the situations that lead to them.

SANDERS: Clearly, this is an ongoing problem. From the physician's point of view, risk management is related to quality of care. From the attorney's and the insurance company's point of view, control of losses or prevention of losses comes into play. It seems to be a relatively new term to physicians. We didn't talk a lot about it a decade ago. Why do you think risk management has become such a commonplace term? Why are we as physicians and medical organizations becoming so much more tuned in to discussions about it?

BLAND: There's certainly an increased awareness of the malpractice problem, and it's important for everybody involved to seek ways to reduce those problems. Also, the public has become more conscious of its rights and perhaps more litigious in nature.

BOARD: With the advent of prepaid medicine and other types of managed care plans, today's patient is more demanding, has higher expectations, and is better educated. The patient is no longer willing to wait for an hour in the doctor's waiting room. Patient surveys show that a patient who waits longer than 15 minutes becomes unhappy. Some, very few, are willing to wait 20 minutes.

LINCOLN: I think these problems are manifested in two primary ways that are leading to more awareness of risk management: the increasing frequency and increasing severity of claims. Both have increased dramatically in the last several years. In Minnesota, the number of claims against physicians has almost doubled in the last five years. The average claim last year reached over $70 thousand in indemnity payment. I think that is doing a great deal to raise physician awareness of the problem and particularly raise awareness of risk management as one of the solutions to the problem.

SMITH: There is no question that the increased frequency and severity of claims are the primary reasons physicians are talking so much about risk management. I'd also like to think that we're talking about risk management because we recognize that it equates with good patient care. Providing the highest quality medical care possible serves not only the best interests of patients, but also, because of potential professional liability, serves the best interests of physicians as well. I think over the next several years the medical profession will try to promote better patient care, better quality assurance, better peer review, better credentialing, and so forth—all in the area of risk management.

Practicing Risk Management

LINCOLN: There's another element to the awareness of risk management. As we have been able to analyze a greater number of malpractice cases and learn what's behind them, we have found that a large number of the cases are or should be preventable, and I think physicians have become much more aware that there are factors they can control to reduce malpractice claims.

BOARD: Frankly, I don't see any real effect of risk management efforts. They're obviously not showing up in our malpractice premiums. As an orthopedic group this year, our premiums are a half million dollars; when I started in this business, the first premium I paid for five orthopedists was $727 a year.

SANDERS: I think it's premature to judge risk management efforts—we really are just in the beginning. For years, physicians have felt almost impotent to change the course of events. We've had a fatalistic attitude that professional liability premiums were going to continue to rise, that we were going to be sued with increasing frequency, and we've sat back and accepted that. But physicians are beginning to realize now that we can do something to change the tide. In the past, we tended to point our fingers at the tort system, at the insurance companies and not at ourselves. Last year, 35 states passed tort reform legislation for professional liability. Now that we have responsive legislatures, now that we have an enlightened public, we are being forced to look at our own house.

How does the legal profession view what is happening in the medical profession right now? Do you see this sudden interest in risk management as something positive or do you think it's too late to make much change?

BLAND: It's very positive. Like everything else, we would be better off now if it had been started five or ten years ago. But it's never too late to start. Public citizens are responding to the medical profession's concern because they see it as a forerunner of their own problems. The legal profession is seeing the very same kind of thing—drastic premium increases, a lot more claims and lawsuits. People who work for cities and municipalities, people who work in day care centers and a variety of other professions are now feeling the impact of liability claims. So it's only logical for physicians (and I think everybody) to start thinking about what to do.

SMITH: Certainly risk management has many facets that physicians need to be aware of beyond the provision of high quality medical care. Communication, for example, is at the heart of risk management. Not only good doctor/patient communication but communication at many other levels as well—between the insurance carriers and physicians, between hospital risk management committees and the physicians that practice in the hospital, and with the hospital employees who work with these same patients.

SANDERS: An interesting study published a couple of years ago interviewed patients who had been through claims that were then closed. Patient plaintiffs were asked, "Why did you sue your physician?" Very rarely did the patient name a specific injury as the basis for the lawsuit. Rather, the common complaint was "My doctor did not talk to me."

BOARD: For a number of reasons, not the least of which was quality assurance, we recently employed a nurse to do utilization review and serve as a patient representative at the clinic. We have advertised her services among our patients, encouraging them to contact her directly with any problem, whether it be their bill, conflict with a physician, conflict with the receptionist, the interviewer, whatever.

Patients seem surprised and pleased that she is available to help solve their problems. I think services like this will be a very important ingredient in holding down the number of lawsuits, particularly frivolous suits.

SANDERS: The very presence of that person implies an attitude that you care what the patient's needs and concerns are and that, in itself, is a tremendous safety valve for some of the emotion that may result in anger and claims.

SMITH: Also, we physicians should avoid those things that anger patients such as haughty attitudes toward patients or their families or aggressive methods for collecting unpaid bills, particularly in those instances where the patient may legitimately feel that the result was less than desirable.

BLAND: Another communication problem: occassionally physicians may make comments about treatment a patient received from a prior physician that may encourage the patient to pursue a malpractice claim. Often we discover that the subsequent physician had either a very limited or erroneous set of facts provided by the patient. I mention this as a reminder that physicians should be very careful about commenting on another physician's care.

SANDERS: This is an issue that's going to become more of a problem as it relates to competition for patients. As there are more and more physicians and a fixed number of patients to whom we can deliver care, we have to be very careful that we don't, in our attempt to compete, say things that demean the reputation of another physician.

These communication breakdowns are not just between physician and patient but also between physicians and other providers such as hospital nursing staff and clinic personnel. More than one suit has been filed, not because of something a physician did or said, but because of some manner in which he or she spoke to a hospital employee or some miscommunication on the part of an employee. We should be training our staff and the people we work with to communicate in ways that will help us avoid some of these professional quagmires.

What else should physicians do to achieve good risk management techniques? We mentioned continuing medical education—the more knowledgeable physician, we hope, is one that is going to be less at risk for a professional liability suit. We talked about improving communications. What other areas should we be addressing?

LINCOLN: Medical record documentation is a major issue we address in risk management. Too often, physicians look at documentation as defensive medicine. The insurance companies and the lawyers are telling physicians to put more in their medical records so a case is defensible. But good medical record documentation can have just as great an impact on the quality of patient care. Many of the claims we see evolve because there wasn't adequate documentation in the record for covering physicians or partners to provide appropriate treatment.

SANDERS: Related to documentation is the interesting observation that for years physicians have been somewhat opposed to the establishment of standards of care—protocols. I've seen less reluctance among physicians to consider these things now. We're starting to say "Maybe it's all right to look at some standards, to look at some protocols, not because we're trying to avoid a lawsuit, but because we're learning that we can write up and document some very basic things that will lead to good patient care."

LINCOLN: Informed consent is another important area of risk management, but unfortunately, area physicians have tended to view the doctrine of informed consent as something the legal profession and the courts created to make physicians' lives more difficult. Obtaining good informed consent can be a marvelous way of starting and expanding communication with the patient. The patient who is well informed about care and treatment options, the patient who is involved in the decision making is probably going to be the patient who will make the best effort to help his or her own outcome, and ultimately, will be less likely to sue if a bad outcome does occur.

SMITH: It is not just good risk management or common decency to discuss issues with patients, but it is, in fact, a legal requirement included in Minnesota's Patients' Bill of Rights, which essentially requires that before any medical procedure or treatment is given that involves some risk, physicians document the reasons for the recommended treatment, the risks, the proposals, the alternatives, and the other issues they discuss with the patient.

BLAND: Lack of communication is a cause of malpractice lawsuits. It simply makes sense that you would want to educate your patient and inform your patient as much as possible. Tell him about the risks of the procedure, tell him about alternatives and their risks.

LINCOLN: Frequently physicians argue, "If I told my patient all those things, I'd see only one patient a day because it takes so much time, and secondly, I would scare the patient off from the procedure because there are so many risks to any medical treatment."

On the issues of scaring patients off, the Presidential Commission on Biomedical Ethics a few years ago did a very detailed study of patients' responses to informed consent discussions. It found that just the opposite is true: Patients are more likely to refuse suggested treatment if they don't feel they've been given enough information about it. Patients want to get *more* information.

Then the problem is how much time to spend with the patient. I don't think anywhere in Minnesota law does it say physicians need to give a laundry list to the patient of every conceivable risk, benefit, or alternative. The law simply says that the patient needs to be informed of what a reasonable person in that patient's position would want to know in deciding whether or not to consent to treatment. The "reasonable" patient is not looking for a short course in medicine or a reading from the PDR.

Informed consent should be an ongoing process. If you maintain communication with patients from your very first encounter, you've really been informing them all along, developing their trust in you, providing information through all of your treatments, so that by the time you get to the point of recommending a particular procedure or specific treatment, that communication is already ongoing and doesn't take that much time.

BLAND: It should be viewed as an opportunity, not an obligation. From a legal standpoint, it's important not only to hold that conversation but to have an entry in your office records, have an entry in the hospital chart, have as many entries about that conversation and have as many people hold a similar conversation with the patient as possible.

LINCOLN: Physicians really do complain about how much documentation of informed consent they think is required. We don't need to see a long note in the record—simply a brief mention that the risks, benefits, and alternatives were discussed with the patient, the patient was given the opportunity to ask questions, the questions were answered, and the patient consented. That's all we need. In fact, most of our defense attorneys recommend that physicians are better off without a detailed list of all the information disclosed to the patient.

Whose Problem is Risk Management?

SANDERS: Let's focus now on the appropriate interrelationships among the disciplines. What can the legal profession, the insurance companies, the medical organizations, and the physicians themselves do conjointly to address the question of risk management? Is it an interdisciplinary issue or is it something that physicians need to handle?

LINCOLN: The role of the insurance company can be to provide data. As we get more claims and better systems for collecting data, insurance companies can better work with the medical profession, the specialty societies, the MMA, and other organized medical groups, to identify what the problems are from the purely clinical aspects to the broader risk management issues like informed consent and documentation. We will be able to let physicians know what the problems are and help identify what can be done to prevent those problems in the future.

SANDERS: Also, we need to encourage our peers not to think of our relationship with the insurance companies as adversarial. When we look upon them as our fellow traveler trying to solve this problem, communication can take place early. Many claims never would have developed if the physician had communicated with someone who could give good advice about how to handle an initial complaint or incident that led to a complaint.

SMITH: Risk management is certainly not just a doctor's problem, it's not just a hospital liability problem, it's a problem of the whole health care delivery system. In many hospitals, risk management is basically a hospital employee problem; doctors are involved very little in the hospital committee structure. For example, few medical staffs yet have a risk management committee as part of their medical staff committee structure.

The sooner we recognize that the problem involves medical receptionists, nurses, IV technicians, at one level—and at another level involves the legal profession, the insurers, and the medical association, the sooner we will be able to work together to control the increase in claims. I think that we've begun that process. The Minnesota Medical Association, for example, through its risk management activities and its Hospital Medical Staff Section, has been advocating physician involvement in the risk management committee structure at the hospital level. The MMA has been actively involved in discussions with various insurers to be sure that we're all working together on risk management education, and we're very tuned in to the need to communicate with attorneys, particularly through our tort reform legislative initiatives.

SANDERS: Dr. Smith suggests that physicians are just getting involved in hospital risk management. I think some basic factors led to that earlier separation. First, typically in Minnesota, the hospital has a different insurance carrier than the physician does, and the impetus for some hospital risk management strategies has come from the insurance carriers. Organizations that are doing commission accreditation of hospitals have also encouraged and even mandated risk management programs. Physicians have felt somewhat immune to the dictates of the JCAH and haven't gotten involved. Once physicians see that they have the power to make changes and that the changes they make have effects, I think there will be better participation.

LINCOLN: I think we'll see increased pressure from hospital administrators to involve physicians in good risk management programs as they recognize that, more and more frequently, the hospital is being held liable for physicians' actions.

Risk Management vs. Quality Assurance

SANDERS: Let's explore the whole concept of risk management. Sometimes the phrase "risk management" is use too interchangeably with concepts like quality assurance. But there's a difference. How do quality assurance and credentialing and some of these other concepts relate to risk management?

BOARD: I think risk management and quality assurance are almost interchangeable. As you do a better job with quality assurance, you're going to be doing a better job with risk management just by the nature of treating the patients, as Dr. Smith has argued.

SMITH: Quality assurance committees in hospitals often seem to be as involved in length of stay and other issues that have as much to do with hospital economics as actual quality assurance to the patient. But hospital medical staff committees in all hospitals do a lot of work directly related to quality. Peer review, for example, has become much stronger in most hospitals as reviews and retrospective analyses have looked at surgeons who have had similar complications in several patients over a short period of time. I believe physicians have become more aware of the need to police themselves and are increasingly willing to do so. In the past, physicians were not always perceived as being willing or able to police themselves.

Credentialing clearly is becoming more rigorous as credentialing committees become more insistent on having good documentation of training in place before granting credentials. Central credentialing, like we have in Hennepin County, is also more prevalent, and the use of uniform standards for hospital physicians is improving.

SANDERS: A good quality assurance program lends itself to good risk management. Risk management, of course, goes beyond quality assurance programs. That's where we get into the area of control of losses, both in terms of frequency and severity of loss.

Mr. Bland, at what point do you think the legal profession should have input? You react to the event after it occurs. Is there a proactive position that the legal profession could take that would diminish some of the problems in hospital risk management?

BLAND: I think of quality assurance and risk management as being interrelated, except I view quality assurance as being more responsive to an event that's already occurred. That's shutting the barn door after the horse is out. And that's often where I get involved because at that point, there's going to be a claim and there's probably going to be a lawsuit. I see risk management, on the other hand, as an attempt to make sure the latch is on the barn door initially. While the two are related, the insurer and the physician would be more likely to be directly involved in risk management *per se* than a lawyer would. As an attorney, I can help identify problem areas and, from a legal standpoint, suggest steps to avoid those problems. The actual machinery, however, has to be put in place by the physicians and the insurers.

LINCOLN: I see risk management as kind of an umbrella that incorporates quality assurance, credentialing—all of the things that Dr. Smith talked about. If we look at risk management in the broader context we defined earlier, then quality assurance will be one element of the whole risk management program. I would hope that quality assurance programs are going further than you suggested and not only looking at events after the fact but at least counting those events and saying "We're getting too many of those,what can we do to prevent them in the future?" That again is exactly what we're trying to do in risk management.

Policing the Profession

SANDERS: As Dr. Smith mentioned, there's a very definite need for us as a profession to police ourselves. One thing that hampers our risk management effort is the public misperception (often fueled by plaintiff attorneys' beliefs) that there are a few bad apples in the profession and that if we police ourselves better, we will get rid of those bad apples and solve the problem. Clearly, data from insurance companies show that this is not true: the few bad apples are *not* the people who end up being sued. It's the good physician who may have committed an error of documentation or communication that is likely to be sued.

LINCOLN: Public perception of the profession policing itself is a big problem, as we saw in our tort reform efforts last year. The legislature's response was, "We'll give you some tort reform, but what are you going to give us in return? What are you going to do with medical discipline? What are you going to do with risk management programs within the profession?" It's a trade-off: We'll get our tort reform, but we have to have some evidence that we are taking steps to police the medical profession and do good risk management.

BOARD: I've found that the threat of a countersuit can make it nearly impossible for a hospital credentialing committee to remove one of its medical staff or take away a physician's privileges.

BLAND: It's a delicate balance. You're telling a physician that you're going to restrict or remove his or her privileges. You can only expect a response, some fight. Any time an organization has the right to provide the privileges for someone and you intend to take those privileges away, I think there should be an opportunity for a full hearing. I'd be concerned if somebody could take away my license or my right to practice law without offering me a chance to fully present my side of the story. And that may well involve lawsuits and lawyers.

BOARD: Still, in so many areas of the law, it seems that you're stymied. It seems the perpetrator has more rights than the innocent party.

LINCOLN: Actually, in many of the privileges cases that have come up around the country, the problem has been with the hospital not following its own bylaws and guidelines. That's where the legal profession can work proactively to educate the hospital administrators about constitutional requirements and due process mechanisms so that credentialing or privileges decisions can be made appropriately.

BLAND: At least the hospital won't lose the case on some technicality because it didn't follow its own procedures.

SANDERS: Dr. Smith, do you find that physicians are still willing to serve on credentialing committees and do retrospective reviews of other physicians' charts?

SMITH: I serve on two hospital surgical committees where these sorts of issues come up fairly frequently. There is definitely a heightened awareness of the personal and possibly professional risks one assumes by serving on these committees. Yet, as was pointed out earlier, hospital bylaws have changed within the last two or three years to reflect the need to protect due process, and I find very few surgeons unwilling to serve on these committees.

I would like to look at peer review in a more positive light. We're talking about bad apples, and it's been pointed out that there are not too many bad doctors, nor are there too many dishonest or unscrupulous doctors. Most of the problems identified in the surgery committee structure, for example, require just a small amount of educational feedback to the physician or surgeon involved rather than punitive action. This mechanism has been very effectively used to teach not only the surgeon, but also other members of the surgical committee and the medical staff. If properly administered, these educational approaches can fit right into a risk management program. In essence, the results of peer review systems can be very positive. It's rare indeed when a physician behaves so grievously that he or she needs to have his or her license or credentials limited or removed.

SANDERS: Both physicians and patients can benefit when there's open discussion with education, rather than a punitive threat, as the goal.

Tort Reform

SANDERS: We've already talked about how tort reform has some effect on risk management efforts. We've said that in response to legislative changes and demands of the public, we now have a need and an opportunity to move into risk management. What other points affect the relationship between tort reform and legislative review and risk management?

SMITH: We should keep in mind that while the tort reform bill passed by the 1986 Minnesota Legislature did quite a bit to limit potential economic awards—it decreased the statute of limitations of minors and did a lot to help us avoid non-meritorious medical malpractice cases from being filed in the first place—it did not stop medical malpractice to the extent that human error on the part of physicians or misunderstandings with patients will continue to occur and it certainly did not solve our professional liability problems or diminish in any way the need to pursue good risk management. As happy as we are with the achievements of this tort reform legislation, we can't let it diminish our resolve to improve patient care and practice risk management. We still have a lot to strive for in the area of tort reform while we work on risk management strategies.

Promoting Risk Management

SANDERS: How do we motivate physicians to practice good risk management techniques?

SMITH: As I've mentioned repeatedly, the desire to provide optimum patient care ultimately motivates the physician to practice good medicine. Educating physicians about good risk management techniques, as we're trying to do with this discussion, helps the physician and the patient.

LINCOLN: Unfortunately, one of the best incentives we've found has been for physicians to actually be involved in a lawsuit. It tends to be a big eye-opener for a physician to go through the process and see firsthand how improper documentation or failure to obtain informed consent or system problems within the office lead to patient injury or create difficulties in the defense of a case. Mr. Bland, I'm sure, has had experience with physicians who are very willing to be educated about risk management after they've been through a lawsuit.

BLAND: In fact, one of the most effective tools may be to have physicians who have gone through a lawsuit tell about their experiences. Not only is it the money involved and concern for quality of medical care, a lawsuit is very disruptive to a practice, whether the suit is successful or not. If a case goes to trial, I ask my client to be with me every day in court because the patient plaintiff is going to be in court every day and the jury is going to be there every day, and I want them to know that we have as much interest in the outcome of the case as does the patient. A trial is a forum that physicians are not comfortable with. It's not a fun experience.

SANDERS: Dr. Sara Charles from Chicago has written a lot about the psychological effects upon physicians and physicians' families at the time of a professional liability lawsuit. I think an awareness of those common emotions that physicians experience would be a good motivator to other physicians. There are many things we tend not think about until we're forced to.

I'm a firm believer from my own experience that one of the best motivators for participation in good risk management techniques is a constant reminder of the problem. In defense of physicians, I have to say we are very busy. There are a great many things demanding our time and attention and emotion. It's very difficult to keep all of the oars in the water. The constant reminder of risk management—through seminars, through publications, through conversation—is very important. It's those little things that make us think about it, think about it, think about it.

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Risk management through quality assurance

Gordon Mosser, M.D.

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Many physicians think of risk management as reactive self-protection. According to this model, the sequence of events begins with an undesirable episode in patient care, for example, a surgical complication. This incident initiates a routine of damage control responses by administrators, lawyers, insurance claim managers, and physicians. These responses are mainly intended to minimize the financial impact of the adverse event.

This model, however, is oversimplified and unnecessarily cynical. Good risk management includes real improvement in patient care through organized quality assurance activities. By avoiding adverse events, quality assurance reduces the need for self-protective responses.

Some skeptics say that quality assurance is impossible because quality cannot be defined. In fact, the definition is no mystery. Quality is simply adherence to standards of excellence. The fundamental question to be answered in launching a quality assurance program is the question of who will set the standards. They should be set by whoever has actual control over patient care in the hospital, medical group, or medical office in which the care is being delivered. If standards are set by someone or some agency that does not have real control over patient care, we can only expect that the standards will be regarded as mere suggestions or that they will be ignored altogether.

Within a hospital staff, medical partnership, or any other group setting, anyone who attempts to establish a comprehensive and fully articulated set of standards will soon find that he or she is stalled by numerous disagreements over details. Standards should be established one-by-one in the settings where the care is delivered. This approach allows different emphases and choices of specific standards for different settings. This lack of uniformity is neither surprising nor objectionable. Medicine encompasses a wide variety of activities, and even groups working in the same small medical field have different priorities for their activities. Also, the available scientific evidence often does not fully support any one specific standard of care. Many different approaches to standard setting are equally valid.

Components of Quality

On the other hand, the general areas for standard setting can be characterized.[1] The general components of quality in medical care are:

- availability or existence of particular services in a given hospital, clinic, or office;
- accessibility of the services to patients;
- technical performance of the physicians in diagnosing and treating disease;
- interpersonal performances of the physicians in dealing with patients and their families;
- coordination of services provided by different physicians and other sources of care;
- amenities of care, that is, the pleasantness of the physical surroundings and atmosphere in which care is provided;
- efficiency in providing care, that is, the degree to which costs are minimized without adversely affecting the other aspects of quality.

This list serves as a chart for guiding the establishment of particular standards by reminding the standard-setters of the full scope of quality considerations.

In the broadest sense, quality assurance includes all activities aimed at maintaining or improving quality.[2] Laboratory quality control, patients' complaints systems, and continuing medical education are examples of quality assurance activities in this broad sense.

In a narrower sense, quality assurance is a cyclical process of measurement, problem correction, and re-measurement. It is iterative and never-ending. Its elements are:

- monitoring of care to detect clues to possible deficiencies;
- selection of particular clues for further study;
- setting of standards in particular areas;
- evaluations of care to determine whether the standards are being met;
- corrective actions for any deficiencies discovered;
- re-evaluation of care at some later date.

Means to Assure Quality

Quality assurance in the narrower sense also encompasses many activities. To understand the range of

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possibilities, it is helpful to focus on the means used for effecting corrective action—most often persuasion, peer pressure, and, to a lesser extent, orders. Coaching or mentoring is also used extensively in teaching settings but rarely in general medical practice. To date, monetary incentives appear not to be useful.

Persuasion: The use of persuasion is exemplified in performance feedback. This technique involves collecting information about the performance of a group of physicians and reporting it to each individual physician along with information about that particular physician's performance. For example, some medical groups periodically produce a report showing how many laboratory tests and X-rays each physician ordered per patient office visit during some recent time period. This report is circulated among the physicians. Each physician is told what his or her own ordering experience was and views the data about the other physicians without knowing specifically who they are. In at least one medical group, this approach appears to have improved efficiency in test ordering.[3] Feedback systems can be used to deal with surgical wound infection rates, patient complaint rates, cesarean section rates, or any other aspect of quality that is deemed important.

Peer pressure: Focused problem correction, the most commonly used quality assurance technique, illustrates the use of peer pressure.[4,5] This is a group activity in which members of a hospital staff or medical group jointly choose a topic and negotiate a standard, measure performance against that standard, and jointly choose a corrective action if one is required. For example, a medical group might wish to increase the percentage of its 2-year-old patients who have received all recommended immunizations. They would first negotiate a specific set of immunization guidelines and then audit a sample of 2-year-old patients' records. If the percentage of immunized children was found to be too low, they would choose an approach for correcting the problem, perhaps an outreach program using postcards, letters, or telephone calls.

Direct orders: In quality assurance activities, physicians usually avoid using direct orders. However, this approach has its proper place. Hospital staff credentialing provides a non-controversial example. Each medical staff, in accordance with its formal procedures, has the right and duty to establish the credentials required of physicians using the hospital and to determine for each individual physician whether his or her credentials fulfill the requirements. A physician who does not meet these requirements may not practice at the hospital. Occasionally, staff physicians may be ordered to alter their behavior in some way, for example, to dictate their hospital chart progress notes so that they are legible. Both hospital staffs and medical groups need to have disciplinary procedures for handling physicians with performance problems arising from mental illness or chemical dependency.

Summary

Formal quality assurance programs are held in low esteem by most physicians. Their views on quality assurance were formulated through their contacts with early quality assurance efforts, mainly in hospital settings. Unfortunately, these early efforts were often ineffective, tedious, and time consuming. The technology of quality assurance is now improving rapidly. Interest is reawakening in quality assurance as a method of improving patient care and not simply as a method of pacifying regulatory agencies. As part of an overall approach to risk management, it can also decrease the financial and emotional costs of treatment complications and other unwanted outcomes of patient care.

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Professional liability for Minnesota physicians

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A questionnaire regarding the effects of professional liability concerns was mailed in November 1985 by the Minnesota Medical Association to a random sample of 500 member physicians in regular active practice; the response rate was 81%. The study addressed the nature of professional liability coverage, the effects of liability concerns on physician practice and patient care, and the impact of the costs of increased premiums on their practice. On average, survey respondents indicated that their professional liability premiums increased at a higher rate than their incomes from 1984 to 1985. The study found that physicians are changing their practice patterns in response to liability concerns. More than 60% reported that they were ordering more X-rays and tests and referring patients more frequently. Nearly one-fourth of the physicians indicated that they had limited their practice in some way to reduce their exposure to risk. Nearly half of the physicians had participated in a risk management seminar; 81% indicated that they would be interested in participating in such a seminar. While physicians rated increasing premiums as the most important determinant in their decision of whether or not to raise their fees, statistical analysis revealed no relationship between professional liability premiums and patient fees.

Every sector of our society has been touched by the problem of liability. The frequency and severity of claims for all types of personal injury and negligence have increased so dramatically in the last few years that there are few activities that do not imply vulnerability to lawsuit.[1] The medical community especially has cause for concern, as the symptoms that heralded the malpractice "crisis" of the 1970s begin to re-emerge. The increasing frequency and severity of malpractice claims nationwide have created problems of both affordability and availability of professional liability coverage, with some specialties and states more severely affected than others.

In Minnesota, the number of claims paid has grown by more than 50% in the last three years. Between 1981 and 1984, the average malpractice claim payment made by insurers rose by 14%. Premium increases for Minnesota physicians have ranged from 25% to 70%. Further, there is a growing concern that reinsurance may become unavailable, thereby compromising the ability of Minnesota physicians to obtain coverage.

In response to these concerns, the Minnesota Medical Association (MMA) created an independent Commission on Professional Liability in June 1985, comprised of representatives from law, business, insurance, the general public, and medicine. The Commission's goal was to assess the medical malpractice climate in our state, to determine its impact on physicians and the public, and to recommend measures that would prevent a malpractice crisis from affecting both the quality of, and access to, health care. The Commission issued its report in November 1985[2]; its recommendations became the central focus of MMA lobbying activities during the 1986 legislative session and beyond.

To complement the work of the Commission, the MMA surveyed Minnesota physicians regarding the effects of professional liability coverage on access and quality and the economic effects of the increasing cost of coverage. This article highlights the findings of that study.

Methods

A computer-generated random sample of 500 physicians who are regular active MMA members was selected. (Regular active membership usually implies that the physician is practicing medicine on a full-time basis.) Data were collected by written questionnaire sent in three waves between November and December, 1985. Each questionnaire was accompanied by a letter, signed by the MMA president and chairman of the board, encouraging participation. Complete anonymity was assured; there were no identifying numbers on the questionnaire itself. A separate return postcard avoided unnecessary follow-up with physicians who had already responded.

The sample was reduced by excluding three retired physicians and six who indicated that the questionnaire was not applicable to their practice. Because the Mayo Clinic self-insures, it was determined that

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Mayo Clinic physicians would be unable to respond to the survey, and the 22 Mayo physicians in the original sample were also excluded. These exclusions yielded a final sample size of 469. Valid returns were received from 380 physicians for a return rate of 81%.

Data were analyzed by frequency distribution, cross tabulation, multiple linear regression, and step-wise group regression.

Results

The nature of professional liability coverage: The costs of professional liability coverage continue to increase, both in absolute dollar amount and in relation to physician income. The American Medical Association's Socioeconomic Monitoring System indicates that from 1983 to 1984, the average premium increased 11% nationwide, from $7,100 to $7,900.[3] Both major carriers of professional liability coverage in Minnesota increased their rates in 1985. Respondents to this survey who provided information on their premium costs experienced an average increase in premiums of 23% between 1984 and 1985, from $11,900 to $14,600. Physician incomes did not increase correspondingly. Premium costs in 1985 represented an additional 1% of gross practice income over the 1984 rates for those who provided data. These premiums are most frequently paid by the medical group (54%) or the individual physician (39%).

Seventy-one percent of all respondents had coverage with limits of $1 million per occurrence and $3 million annual aggregate. Six percent of the respondents had policies that included deductibles. Two companies accounted for nearly all the professional liability coverage for Minnesota physicians: 50% of the respondents were covered by the Minnesota Medical Insurance Exchange and 42% by the St. Paul Companies.

Staff privileges at a hospital may be contingent upon having professional liability coverage. Eighty-nine percent of the respondents indicated that they are required by the hospitals in which they practice to have professional liability coverage. Three respondents indicated that at some point in their careers they had been refused coverage by a professional liability insurance carrier. One respondent was, at the time of the study, practicing without coverage.

Respondents expressed a great deal of interest in risk management education. Eighty-one percent indicated that they would participate in such a program if one were offered to them. Nearly half (46%) of the respondents had already participated in risk management education. Of those who participated, 18% indicated that there was financial incentive for them to participate. The most frequently cited reason (33%) for those who had not participated in risk management education was "no appropriate opportunity."

Effects of liability concerns on physician practice and patient care: Defensive medicine is one of the frequently cited outcomes of liability concerns. Analysts have defined two basic types of defensive medicine responses: **"Positive defensive medicine"**[4] is the conducting of a test or procedure that is not medically justified to prevent or defend against medical-legal liability; **"negative defensive medicine"**[4] is the non-performance of a test or procedure or the discontinuance of a line of business (such as obstetrics) because of the fear of a malpractice suit. We asked Minnesota physicians whether they had made changes in their practices in response to the threat of malpractice suits. The majority of physicians had made such changes, as noted in Table 1.

TABLE 1

Practice change	% of Respondents
Ordering more X-rays	64%
Referring patients more frequently	62
Ordering more lab tests	60
Hiring more staff	27
Hospitalizing patients more frequently	24

TABLE 2

Type of procedure	% of Respondents
Obstetrics	9%
Surgery	7
Other	4
Orthopedics	3
Emergency care	2
Anesthesia	1

"Positive defensive medicine" changes increase the cost of care. The adoption of "negative defensive medicine" practices decreases access to care. The American Medical Association notes that 35% of its members had limited their services due to liability concerns in 1984.[5] By comparison, our study of Minnesota physicians found that 23% of the respondents sought to reduce their exposure to suits by limiting their practice. Table 2 categorizes the procedures these physicians discontinued.

The availability of obstetrical care has been a concern both nationally, and in Minnesota. In Florida, one-fourth of all Ob/Gyns have stopped delivering babies.[2] Concern in Minnesota has focused on access to prenatal care and delivery in rural areas. Of the 9% of the respondents in our study who indicated that they had limited their obstetrical care, 67% were family physicians. The Report of the Minnesota Commission on Professional Liability notes that over 40 family physicians in our state discontinued the provision of obstetrical care in 1985. The 9% of the respondents to this survey who limited obstetrical procedures were asked to further specify which procedures they had eliminated. The results are cited in Table 3.

In addition to the responses cited in Table 3, the following procedures were each noted by 3% of

TABLE 3

Procedure eliminated	% of Respondents
All OB care and deliveries	61% of 9%
Complicated/high risk OB	19% of 9%

TABLE 4

Responses to increasing premiums	1985	1986
Absorb premium increases without raising fees	41%	20%
Reduce number or freeze salaries of office staff	12	11
Work longer hours/see more patients to spread overhead costs	34	25
Limit types of procedures to reduce risk classification	15	19
Increase fees for non-Medicare, non-Medicaid patients	38	45
Increase fees for high-risk services	29	37

those respondents who had limited their obstetrical procedures: amniocentesis, cone biopsy, multiple births, cesarean section, and cervical myelogram.

The burden of increased premium costs: Increased testing and more frequent referrals and hospitalizations result in higher medical bills to be paid by patients and their third-party payers, (except when a capitated payment is provided, as in health maintenance organizations). But what happens to increases in professional liability premiums? Are they passed on to the patient in the form of higher fees, or are they absorbed by the physician? The results are equivocal.

The study asked physicians how they were currently handling increases in professional liability premiums (1985), how they expect to handle increases in the coming year (1986), and what methods they are using now that they plan to continue in the future. Physicians were able to indicate more than one method in response to this question. Results suggest that their response to higher premiums will change dramatically in the future. For 1985, the categories indicating that physicians were bearing the increased costs themselves received the most responses: 41% indicated that they would absorb premium increases without raising fees, and 34% indicated that they would work longer hours and/or see more patients to spread their overhead costs. Fewer physicians plan to use these methods in the future, however. For 1986, physicians willing to absorb premium rates dropped to 20% and those planning to work longer hours and see more patients dropped to 25%. Physicians indicated that in the future they will raise fees to handle premium increases. The response rate for increasing fees for non-Medicare, non-Medicaid patients increased from 38% to 45% from 1985 to 1986. Similarly, the response for increasing fees for high-risk services increased from 29% to 37% from 1985 to 1986. The categories and the response rate for each are shown in Table 4.

Seventy-six percent of all respondents had increased their professional fees in the past two years. Physicians were asked to rate the impact of various factors in deciding whether or not to increase fees using a scale of 1 to 5 (1 = hardly considered at all, 5 = extremely great impact). The four most significant factors in the decision (listed with their means) were: professional liability insurance (3.71), employee salaries and benefits (3.23), cost of living (3.18), and voluntary fee freeze (3.13).

While physicians anticipate that they may pass along the increases in their liability costs to patients in the future, we could find no statistical evidence that they are doing so currently. Multiple linear regression and step-wise group regression analyses were used to determine the impact of insurance premiums on patient fees. Both types of analyses were based on an equation that expresses fees as a function of premiums, specialty, rate classification, insurance carrier, physician characteristics, and practice characteristics. Various measures and combinations of measures of fees and premiums were used in the analyses. Data analysis revealed no relationship between professional liability premiums and patient fees.

The finding that higher premiums do not lead to higher physician fees is contrary to widely held opinion and the results of previous studies. Nevertheless, this somewhat surprising finding can be understood within the context of an economic model that postulates that premiums do not influence physician fees because premiums are fixed costs, unrelated to patient volume. This model postulates that marginal costs rather than fixed costs determine prices. Another possible explanation is that while physicians are not currently passing along the cost of increases in professional liability premiums because they feel constrained by competitive forces, the financial burden of rising premiums may cause them to do so in the future.

Summary

The clamorous debate over medical malpractice issues heard across the country is being echoed in Minnesota. This study indicates that professional liability warrants serious concern on several fronts. Premium increases for Minnesota physicians ranged from 25% to 70% last year. An average increase in premiums from $11,900 to $14,600 was cited by survey respondents providing information on their premium costs.

There are also implications for patient care. Physician respondents said that concerns over professional liability are affecting the way in which they practice medicine. More than 60% of the physicians participating in the study indicated that they had adopted at least one "positive defensive medicine" practice (e.g., ordering more X-rays, referring patients more frequently, ordering more lab tests). Nearly one-fourth of the respondents had limited their practice in some way ("negative defensive medicine") as a result of liability concerns. Obstetrics was the most frequently cited area for limiting physician practice. Nine percent of the respondents indicated that they had limited their obstetrical services. Of that 9%, 61% no longer provided any obstetrical care and 19% no longer provided care for complicated or high-risk obstetrical patients. Sixty-seven percent of those who limited their obstetrical care were family physicians.

Physicians rate professional liability costs as the most important factor in their decision regarding whether or not to raise fees (3.71 on a 5-point scale). However, detailed statistical analyses revealed no relationship between professional liability and patient fees. At this time, in general, physicians do not seem to be passing along premium costs to their patients.

Future Study

While Minnesota physicians currently appear not to be passing along increased premium costs to their patients, this relationship should be reexamined over the next several years to determine whether there is a change. Concern over the accessibility of obstetrical care in Minnesota's rural areas would warrant increased sampling of rural physicians to allow for generalizations to various portions of the state. Finally, future studies should examine the relationship between malpractice suits and changes made in the physician's practice.

Acknowledgment

The authors acknowledge with gratitude the consultation and technical assistance of Bryan Dowd, Ph.D., Assistant Professor, Division of Health Services Research and Policy, School of Public Health, University of Minnesota. Dr. Dowd was Ms. Buhler's thesis adviser and reviewed this article prior to publication.

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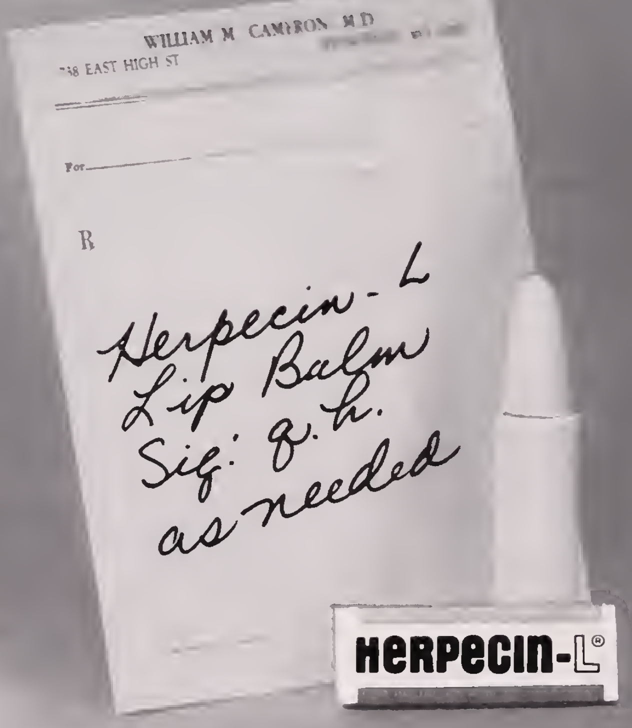

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	cimetidine 400 mg h.s.	23%	34%	43%	66
UK, Ireland, Australia[2]	ranitidine 150 mg h.s.	8%‡	14%‡	23%‡	243
	cimetidine 400 mg h.s.	21%	34%	37%	241

*$p=0.02$
†$p=0.01$
‡$p \leq 0.004$
%=life-table estimates
All patients were permitted prn antacids for relief of pain.

These two trials used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.

The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.

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Headache, sometimes severe, seems to be related to ranitidine administration. Other side effects have been reported; for a complete listing, see the **ADVERSE REACTIONS** section in the Brief Summary.

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See next page for references and
Brief Summary of Product Information.

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ZANTAC® 150 Tablets
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BRIEF SUMMARY OF PRODUCT INFORMATION

The following is a brief summary only. Before prescribing, see complete prescribing information in ZANTAC® product labeling.

INDICATIONS AND USAGE: ZANTAC® is indicated in:

1. Short-term treatment of **active duodenal ulcer.** Most patients heal within four weeks.
2. **Maintenance therapy** for duodenal ulcer patients at reduced dosage after healing of acute ulcers.
3. The treatment of **pathological hypersecretory conditions** (eg, Zollinger-Ellison syndrome and systemic mastocytosis).
4. Short-term treatment of **active, benign gastric ulcer.** Most patients heal within six weeks and the usefulness of further treatment has not been demonstrated.
5. Treatment of **gastroesophageal reflux disease (GERD)**. Symptomatic relief commonly occurs within one or two weeks after starting therapy and is maintained throughout a six-week course of therapy.

In active duodenal ulcer; active, benign gastric ulcer; hypersecretory states; and GERD, concomitant antacids should be given as needed for relief of pain.

CONTRAINDICATIONS: ZANTAC® is contraindicated for patients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomatic response to ZANTAC® therapy does not preclude the presence of gastric malignancy.

Since ZANTAC is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see **DOSAGE AND ADMINISTRATION**). Caution should be observed in patients with hepatic dysfunction since ZANTAC is metabolized in the liver.

False-positive tests for urine protein with Multistix® may occur during ZANTAC therapy, and therefore testing with sulfosalicylic acid is recommended.

Although recommended doses of ZANTAC do not inhibit the action of cytochrome P-450 enzymes in the liver, there have been isolated reports of drug interactions which suggest that ZANTAC may affect the bioavailability of certain drugs by some mechanism as yet unidentified (eg, a pH-dependent effect on absorption or a change in volume of distribution).

Lack of experience to date precludes recommending ZANTAC for use in children or pregnant patients. Since ZANTAC is secreted in human milk, caution should be exercised when administered to a nursing mother.

ADVERSE REACTIONS: Headache, sometimes severe, seems to be related to ZANTAC® administration. Constipation, diarrhea, nausea/vomiting, and abdominal discomfort/pain have been reported. There have been rare reports of malaise, dizziness, somnolence, insomnia, vertigo, tachycardia, bradycardia, premature ventricular beats, and arthralgias. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients.

In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg qid IV for seven days, and in 4 of 24 subjects receiving 50 mg qid for five days. With oral administration there have been occasional reports of reversible hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice.

There have been rare reports of reversible leukopenia, granulocytopenia, thrombocytopenia, and pancytopenia.

Although controlled studies have shown no antiandrogenic activity, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving ZANTAC, but the incidence did not differ from that in the general population.

Incidents of rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia, have been reported, as well as rare cases of hypersensitivity reactions (eg, bronchospasm, fever, rash, eosinophilia) and small increases in serum creatinine.

OVERDOSAGE: Information concerning possible overdosage and its treatment appears in the full prescribing information.

DOSAGE AND ADMINISTRATION Active Duodenal Ulcer: The current recommended adult oral dosage is 150 mg twice daily. An alternate dosage of 300 mg once daily at bedtime can be used for patients in whom dosing convenience is important. The advantages of one treatment regimen compared to the other in a particular patient population have yet to be demonstrated.

Maintenance Therapy: The current recommended adult oral dosage is 150 mg at bedtime.

Pathological Hypersecretory Conditions (such as Zollinger-Ellison Syndrome): The current recommended adult oral dosage is 150 mg twice a day. In some patients it may be necessary to administer ZANTAC 150-mg doses more frequently. Doses should be adjusted to individual patient needs, and should continue as long as clinically indicated. Doses up to 6 g/day have been employed in patients with severe disease.

Benign Gastric Ulcer: The current recommended adult oral dosage is 150 mg twice a day.

GERD: The current recommended adult oral dosage is 150 mg twice a day.

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HOW SUPPLIED: ZANTAC® 300 Tablets (ranitidine hydrochloride equivalent to 300 mg of ranitidine) are yellow, capsule-shaped tablets embossed with "ZANTAC 300" on one side and "Glaxo" on the other. They are available in bottles of 30 (NDC 0173-0393-40) and unit dose packs of 100 tablets (NDC 0173-0393-47).

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Store between 15° and 30°C (59° and 86°F) in a dry place. Protect from light. Replace cap securely after each opening.

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February 1987

legislative report

Tort Reform in Minnesota

Editor's Note: Today, everybody is feeling the pressures of professional liability—physicians, lawyers, dentists, engineers, architects. This issue of Minnesota Medicine *looks at some steps physicians can take to diffuse the risk of malpractice—they spell out good, defensible medicine.*

But at the same time, tort reform remains an important factor in resolving the professional liability crisis we face. Last year's efforts in the state Legislature did a lot to limit potential awards and to help avoid the filing of frivolous claims, but our work is not done in the Legislature. Following is a brief review of the civil justice system changes adopted last year and tort reform plans for 1987.

1986 Legislation

Following aggressive efforts by MMA physicians and auxilians last year, the 1986 Minnesota Legislature adopted a number of measures that are expected to result in long-term savings to physicians. The report of the MMA-created Minnesota Coalition on Professional Liability, released in 1985, stimulated professional and business groups to seek legislative reform. The success of their efforts is reflected in the Legislature's adoption of the following changes in the civil justice tort system in 1986.

Statute of limitations for minors: The statute of limitations for minors was reduced from the previous 19 years of age to a total of 9 years.

Certification of meritorious claims: Plaintiffs in a medical malpractice action are required to serve the defendant with an affidavit by the plaintiff's attorney indicating that (1) a medical expert has been consulted prior to filing the claim; and (2) in the expert's opinion, the case is meritorious. Within 180 days of filing the suit, the plaintiff's attorney must provide an affidavit stating the identity of the expert witnesses who will be called to testify. Violations may cause the plaintiff or the attorney to be liable for a penalty or dismissal. These provisions will help eliminate frivolous claims.

Damage awards: Awards for non-economic damages such as loss of consortium, embarrassment, and emotional stress were capped at $400,000.

- Punitive damage claims can no longer be included in new complaints. The plaintiff must amend the pleadings and provide evidence to the court to support the motion.
- The trial judge is required to calculate the net collateral benefits available to the plaintiff such as life insurance proceeds, social security payments, disability insurance payments, and pensions. The net benefits are then deducted from the judgment.
- Future damages are determined by the use of a statutory discount rate to determine the current value of the award. The trial judge will apply the formula to the jury's award.
- The payment of interest before the judgment (prejudgment interest) begins either from the date the suit was commenced or from the date a written settlement demand is made, which ever occurs first.

Access to plaintiff's physician: The medical privilege of the plaintiff is waived and defense attorneys may discuss the case with the plaintiff's physicians with the consent of the physicians or by deposition. The plaintiff's attorney must be notified and allowed to be present.

Proposed 1987 Legislation

In 1987, the Minnesota Civil Justice Coalition (CJC) is working to carry civil justice system reform beyond that achieved in 1986. The broad-based coalition includes the MMA, business associations, other professional groups, government units, and individual businesses.

The CJC's five-part legislative package proposes:

- Abolishing joint and several liability where persons have not acted together;
- Basing liability awards solely on fault rather than on ability to pay;
- Adding a cap on awards for pain and suffering;
- Limiting the contingency fee an attorney can receive;
- Requiring that punitive damages be paid to the state since the purpose of punitive damages is to punish the wrongdoer and not to reward the plaintiff.

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Allegation

Negligent follow-up care resulting in delayed surgery.

Facts

The patient, a 25-year-old female with a history of Crohn's disease, was seen by Dr. X on March 21, 1983, complaining of a six-week history of left lower quadrant abdominal pain. Upon examination she was noted to have mild left lower quadrant discomfort, but no masses were noted. Pelvic exam was normal as was her laboratory work-up. A diagnosis of abdominal muscle strain was made and the patient was encouraged to return to the clinic as necessary.

On April 24, 1983, the patient returned to the clinic and was seen by Dr. Y complaining of cold-like symptoms, a temperature elevation to 102 degress, and continued abdominal pain and nausea. Upon examination, the patient was noted to have extreme tenderness in the left lower quadrant. WBC was 14,000. Hemoglobin was 11.0 grams. The patient was started on oral antibiotics for a possible diverticulitis and advised to return to the clinic in 24-48 hours if not improved.

The patient was next seen when she presented to Dr. X on May 2, 1983, with continued complaints of abdominal pain and a persistent temperature elevation. A 15-pound weight loss was noted. Hemoglobin was 9.8 grams. On examination, the patient was noted to have a questionable mass in the left abdomen. An ultrasound performed the following day revealed questionable fluid-filled loops of bowel or a cystic mass. Because Dr. X rotated between three clinics, he did not see the report of the ultrasound until May 9, at which time he admitted the patient to the hospital. Ultimately, she underwent a bowel resection with a diverting colostomy because of an intra-abdominal abscess.

Disposition

This case settled for $3,000.

Reasons for Settlement

The claimant's expert was prepared to testify that the patient should have been hospitalized on May 2 in light of her 15-pound weight loss, drop in hemoglobin, persistent temperature elevation, and the presence of a palpable abdominal mass.

Although the physicians at the clinic routinely rotated through three satellite offices, there was no mechanism to ensure that they or one of their partners were notified of abnormal test results. This failure resulted in a six-day delay in hospitalization and surgery.

Risk Management Comments

Timely review of all diagnostic tests is necessary to prevent delays in treatment and patient injuries. Each clinic should have a system in place to ensure that a physician reviews all laboratory and X-ray reports in a timely fashion. Because physicians are sometimes absent from the clinic when results of previously ordered studies are reported, each clinic should have a mechanism to ensure that these reports are reviewed by another physician in the group or by a covering partner. To ensure that reports are reviewed prior to filing in a patient's chart, many clinics have adopted a policy requiring physicians to initial reports as evidence of their review.

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letters to the editor

Ventilator Dependence

We would like to inform *Minnesota Medicine* readers that patients can be rehabilitated and weaned from prolonged ventilator dependence. After seven years of experience at the Prolonged Respiratory Care Unit at Bethesda Lutheran Medical Center, St. Paul, we have determined that this rehabilitation and weaning effort requires a multidisciplinary team approach, positive reinforcement by an experienced staff, and dedication to returning patients to the home or an outpatient setting. It has become apparent that the ten days allowed by DRG payment is unrealistic. Our mean time for weaning has been 25.6 days.

What conditions lead to ventilator dependence? We have treated 56 patients. Of these, 26 (46%) have had chronic obstructive pulmonary disease; another 39% have had neurological conditions. What have been our results? Of the patients we have handled, 12% have expired, 4% have been partially weaned, 63% have been weaned completely, and 21% are still on ventilators at home or in an institution. How long does it take to wean patients from mechanical ventilation? Overall, our mean time has been 25.6 days, but we are improving. In 1984, it took us a mean time of 24.3 days; in 1985, a mean time of 21.5 days.

We have found weaning must be done in a specialized respiratory care unit staffed by personnel who can positively encourage patients and who can evaluate the patients' abilities to free themselves from their mechanical contrivances. A prolonged respiratory care unit is a much better setting for weaning and rehabilitation than an intimidating intensive care unit.

Prolonged respiratory dependence is an important problem for society. In a national survey of 21 states by the National Association of Respiratory Therapists in 1984, investigators found 2,272 patients dependent on ventilators to breathe. Of these, 19.3% were age 17 or younger; 51.0% were age 18-64; 29.6% were over 65. According to these figures, 14% of these patients could have been placed in homes or other institutions.

We believe that our data should be more widely known because: (1) Many patients considered totally dependent on a machine to breathe can be weaned; (2) Many can be returned to their homes; and (3) We have shown current reimbursement policies deny access to care for this unfortunate group of patients of all ages.

Frank J. Indihar, M.D., F.A.C.P.
Alexander Adams, MPH, RRT
Julie Doran, RRT
St. Paul Interests, P.A.

Radioactive tableware

As a practicing health physicist, I'm very familiar with the tableware that is the subject of the article by Steven Sirr, M.D., et al. entitled "Orange Ceramicware Containing Uranium Glaze," which appeared in the December 1986 issue of *Minnesota Medicine*. I wish to express my agreement with the basic conclusions of the article. However, it's not evident from the information provided as to how the authors arrived at an estimated hand exposure of 75 R/yr. Using a surface radiation level of 10 mR/hr and a daily contact of 50 minutes, I calculate an annual hand exposure of approximately 3 R/yr, which is well below the authors' calculated value.

Duane C. Hall
Certified Health Physicist
River Falls, Wisconsin

I thank Mr. Hall for indicating an omission in our manuscript. I hope the following discussion will clarify our estimation of radiation dose to the hand from ceramicware containing U^{238} glaze.

Uranium^{238} decintigrates by beta and alpha decay. X-rays and gamma rays are also emitted from U^{238} orange glaze. Our measurements of radiation (see article, Table 1) utilized a G-M survey meter that detected only gamma plus beta emissions. The estimate of absorbed radiation dose to the hand was based on radiation deposited in skin from gamma, beta, *and* alpha particles. Because alpha particles are much more ionizing than beta or gamma emissions (quality factor of 10 and 1, respectively) our estimate of hand dosimetry (which omitted mention of alpha dosimetry) appears too large.

Our estimate of dosimetry also was influenced by considerations of the source-target distance and is only a very rough estimate. Many complex factors influence the radiation dose a tissue receives.

Our manuscript is based upon the premise that radiation exposure from ceramicware containing U^{238} glazes represents a small, yet avoidable risk.

Steven A. Sirr, M.D.
Department of Radiology
Division of Nuclear Medicine
Hennepin County Medical Center

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For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

MARCH 1987

2-6 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

4-5 **Drug Therapy Symposium VIII** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

4-6 **Fifth Annual Critical Care Conference** St. Paul-Ramsey Medical Center, Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

13 **Psychiatry: Diagnostic and Statistical Manual** CME, Medical School, University of Minnesota; Mayo Auditorium, Minneapolis, Minnesota; CONTACT: Office of CME, Box 202 Mayo, 420 Delaware St. SE, Minneapolis, MN 55455; (612) 626-5525.

14-21 **Symposium on Sports Medicine** Minnesota Medical Association Subcommittee on Sports Medicine; Radisson Inn Maingate, (Orlando) Kissimmee, Florida. CONTACT: Minnesota Medical Association, Department of CME, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

16-20 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

18 **Infectious Diseases** - CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881 x259.

20-21 **Eighth Annual Occupational Medicine Update** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

21-22 **Lasers in Gynecology and Urology** Abbott Northwestern Hospital, Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, MN 55407; (612) 874-5461.

26-27 **Brain Dysfunction: Assessment, Treatment and Employment** CME, Medical School, University of Minnesota; 2-530 Moos Tower, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

27 **Selected Problems in Gastroenterology** The Duluth Clinic, Ltd.; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

27-28 **Dermatology Update - 1987** Park Nicollet Medical Foundation; Radisson Inn Plymouth, Plymouth, Minnesota. CONTACT: Elaine Anderson, Director, Prof. Education, Park Nicollet Medical Foundation, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3703.

28 **Minnesota Society of Anesthesiologists Spring Scientific Meeting**; Minnesota Society of Anesthesiologists; Marriott Hotel, Bloomington, Minnesota. CONTACT: Peter A. Southorn, M.D., 200 First Street SW, Rochester, Minnesota 55905: (507) 286-8701.

MAR 30-APR 3 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

APRIL 1987

2-4 **Primary Care Medicine** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

3-4 **Borderline Syndrome in Adolescents** Abbott-Northwestern Hospital; The Saint Paul Hotel, St. Paul, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

3-4 **Colorectal Problems in Primary Care** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street, SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-7 **Annual Ophthalmology Course: Pediatric Strabismus** CME, Medical School, University of Minnesota; Holiday Inn-Downtown, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-8 **Minnesota Academy of Family Physicians Annual Spring Refresher** Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington, Minnesota. CONTACT: Virginia Barzan, Executive Director, MAFP, 2221 University Avenue SE, Suite 426, Minneapolis, Minnesota 55416; (612) 623-2890.

9-10 **Obstetrics and Gynecology Update** CME, St. Paul-Ramsey Medical Center, Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

9-10 **Eating Disorders** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

9-11 **Allergy and Clinical Immunology** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10 **ENT Update Workshop for Family Physicians** St. Joseph's Hospital, St. Paul-Ramsey Medical Center and the University of Minnesota Medical School; Margaret G. Scheffer Auditorium at St. Joseph's Hospital, St. Paul, Minnesota. CONTACT: Ruth K. McIntyre, CME, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3992.

10 **Third Annual Duluth Heart Conference** The Duluth Clinic, Ltd. & St. Mary's Medical Center, Regional Heart Center; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

10-11 **10th Annual Update in Clinical Cardiology** Abbott-Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

13-17 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

20-24 **Family Practice Review: Update 1987** CME, Medical School, University of Minnesota; Radisson Hotel South, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

23-24 **Difficult Decisions in Pediatrics** Mayo Clinic, Mayo Clinic, Rochester, Minnesota. CONTACT: Patricia S. Simmons, M.D., Department of Pediatrics, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2511.

25 **Minnesota Urological Society Annual Spring Seminar** Minnesota Urological Society; L'hotel Sofitel, Minneapolis, Minnesota. CONTACT: Helen Chanak, 3625 West 65th Street, Suite 120, Edina, Minnesota 55435; (612) 920-7660.

29-30 **Alzheimer Disease: Toward a Standard of Care** CME, University of Minnesota Medical School; Radisson St. Paul Hotel, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

APR 30-MAY 1 **Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies** Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

MAY 1987

6-8 **Minnesota Medical Association's 134th Annual Meeting and Scientific Program** Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

13-14 **Human Aging X: Transitional Care** CME, Medical School, University of Minnesota; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525

15-16 **The Complicated Diabetic** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-20 **North American Primary Care Research Group** CME, Medical School, University of Minnesota; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

19 **Gynecologic Oncology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

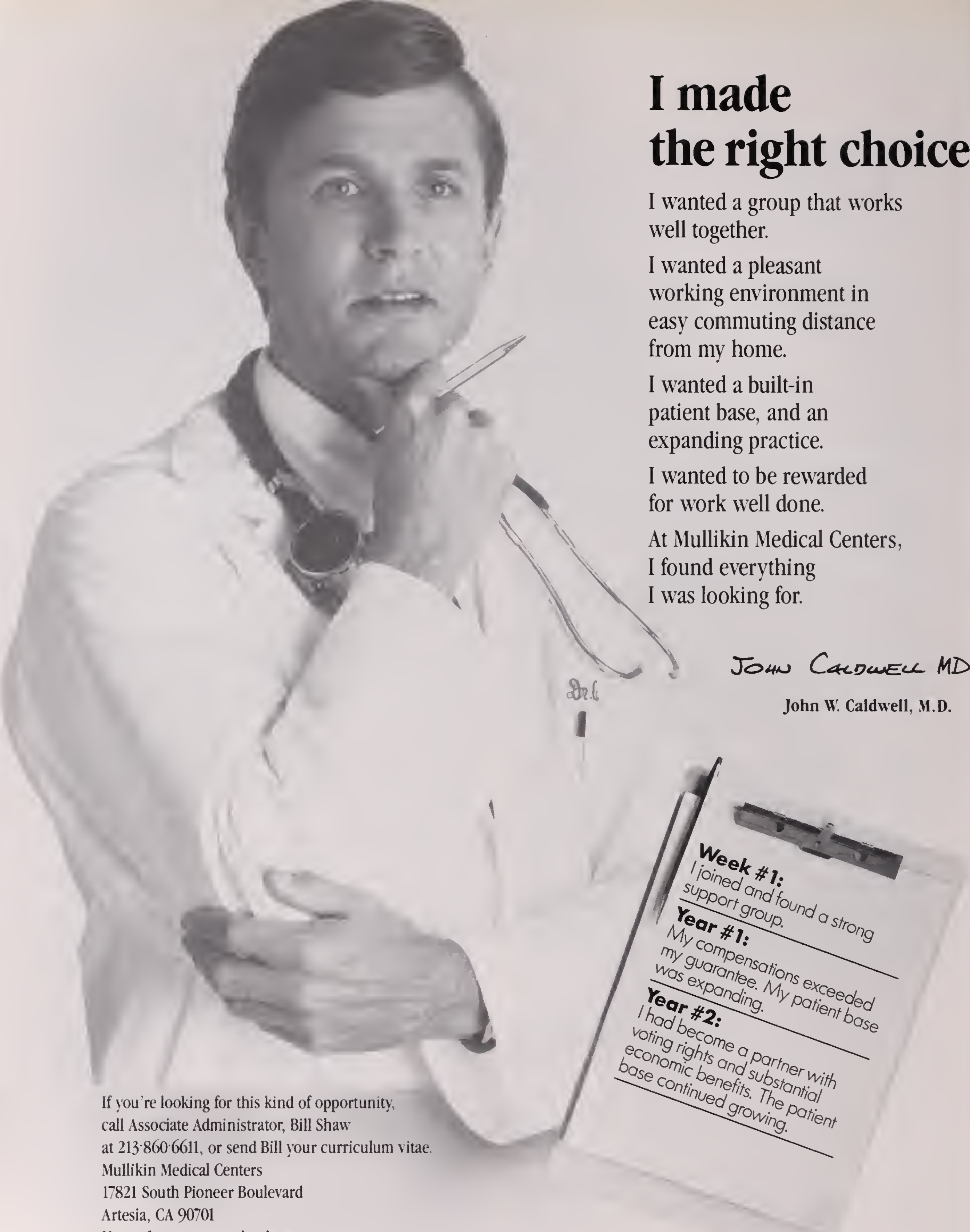
20-22 **Current Concepts in Radiation Therapy** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Medical School, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

29-31 **Surgery for the Primary Care Physician** CME, Medical School, University of Minnesota; Grandview Lodge, Brainerd, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

JUNE

1-3 **Laser Surgery - Gynecology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

5-6 **Workshops on Clinical Hypnosis** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.



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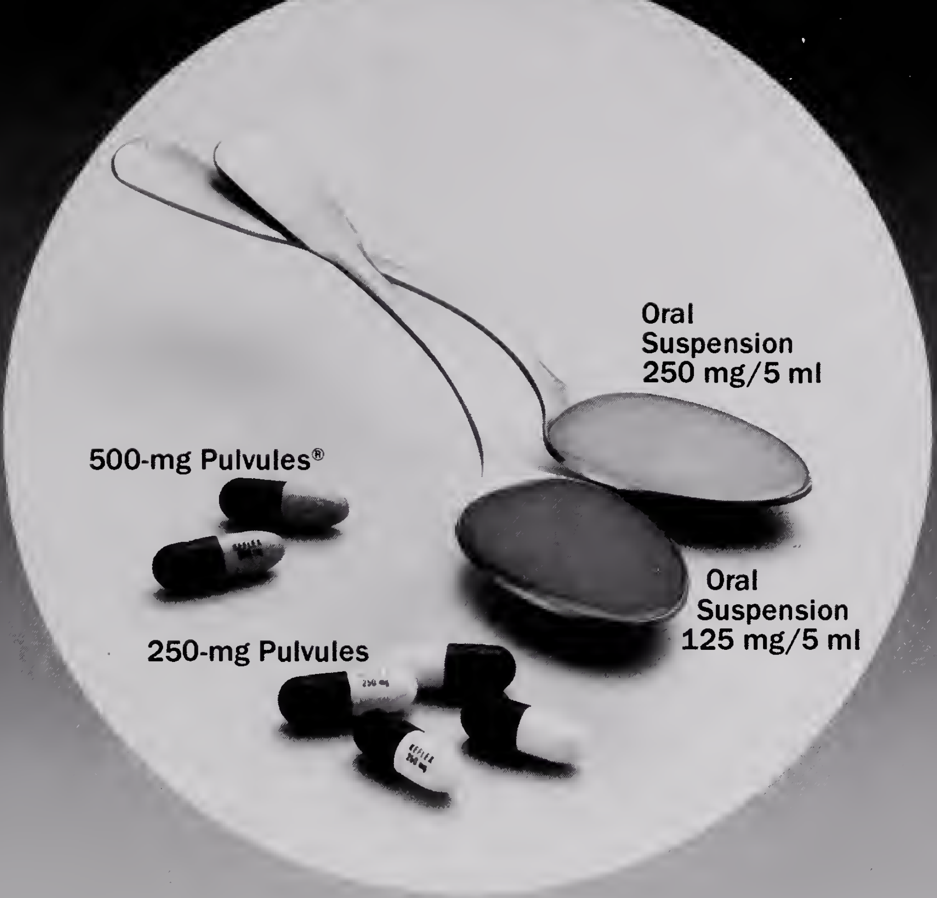
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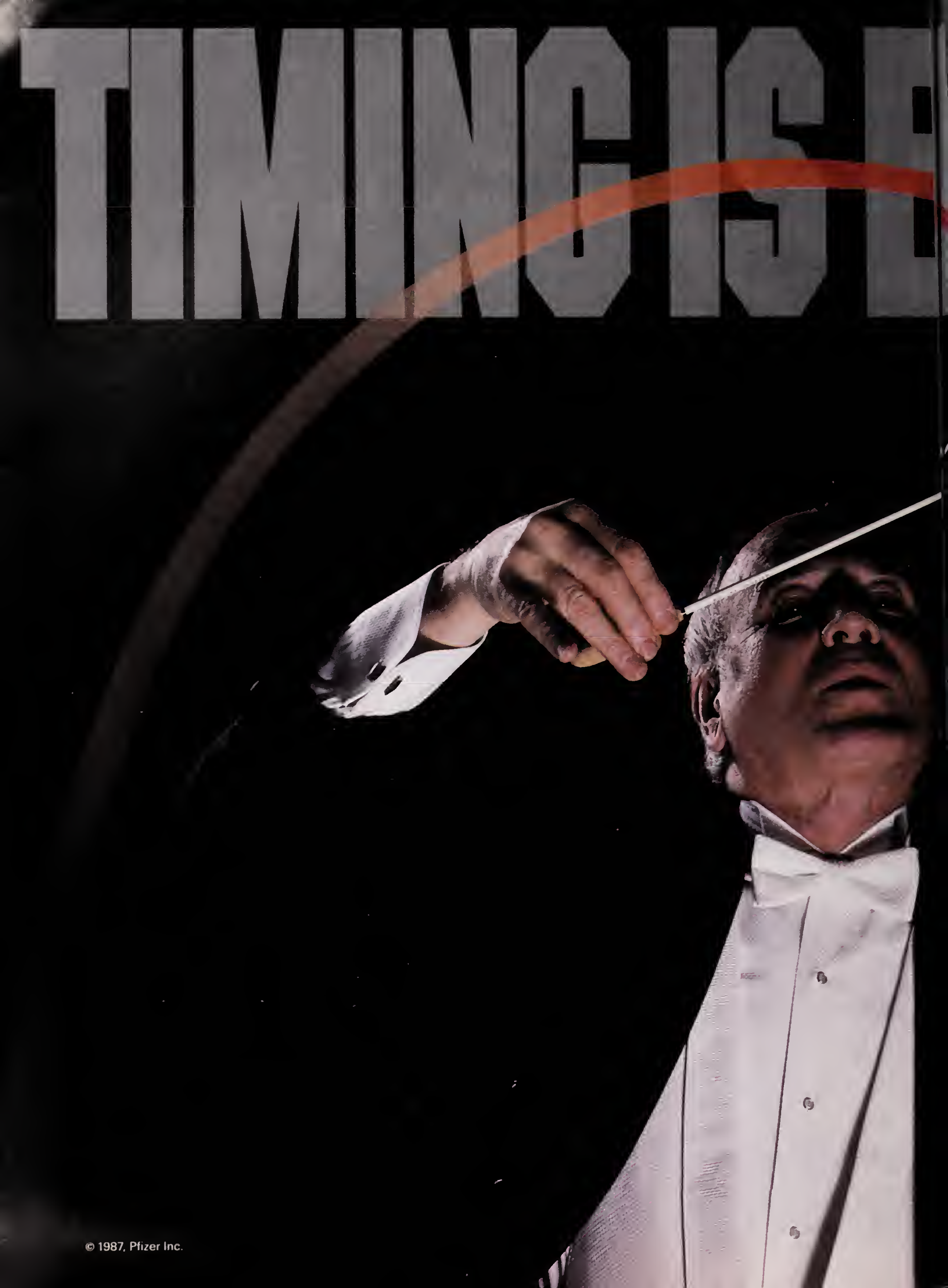

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VERYTHING

Effective control time and time again[1]

Effective control of fasting and postprandial glucose—patient after patient, meal after meal, year after year.

Insulin when it's needed

Insulin levels are rapidly elevated in response to a meal, then return promptly to basal levels after the meal challenge subsides.

Timed to minimize risks

Rapidly metabolized and excreted, with an excellent safety profile.[1] As with all sulfonylureas, hypoglycemia may occur.

In concert with diet in non-insulin-dependent diabetes mellitus

Glucotrol®

(glipizide) 5-mg and 10-mg Scored Tablets

SYNCHRONIZED SULFONYLUREA THERAPY

Please see brief summary of Glucotrol® (glipizide) prescribing information on next page.

ROERIG Pfizer
A division of Pfizer Pharmaceuticals
New York, New York 10017

Reference:
1. Sachs R, Frank M Fishman SK Overview of clinical experience with glipizide In *Glipizide A Worldwide Review* Princeton, NJ, Excerpta Medica, 1984 pp 163-172

GLUCOTROL® (glipizide) Tablets

Brief Summary of Prescribing Information

INDICATIONS AND USAGE: GLUCOTROL is indicated as an adjunct to diet for the control of hyperglycemia in patients with non-insulin-dependent diabetes mellitus (NIDDM type II) after an adequate trial of dietary therapy has proved unsatisfactory

CONTRAINDICATIONS: GLUCOTROL is contraindicated in patients with known hypersensitivity to the drug or with diabetic ketoacidosis, with or without coma, which should be treated with insulin

SPECIAL WARNING ON INCREASED RISK OF CARDIOVASCULAR MORTALITY: The administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin. This warning is based on the study conducted by the University Group Diabetes Program (UGDP), a long-term prospective clinical trial designed to evaluate the effectiveness of glucose-lowering drugs in preventing or delaying vascular complications in patients with non-insulin-dependent diabetes. The study involved 823 patients who were randomly assigned to one of four treatment groups (*Diabetes*, 19, supp 2:747-830, 1970).

UGDP reported that patients treated for 5 to 8 years with diet plus a fixed dose of tolbutamide (1.5 grams per day) had a rate of cardiovascular mortality approximately 2-1/2 times that of patients treated with diet alone. A significant increase in total mortality was not observed, but the use of tolbutamide was discontinued based on the increase in cardiovascular mortality, thus limiting the opportunity for the study to show an increase in overall mortality. Despite controversy regarding the interpretation of these results, the findings of the UGDP study provide an adequate basis for this warning. The patient should be informed of the potential risks and advantages of GLUCOTROL and of alternative modes of therapy.

Although only one drug in the sulfonylurea class (tolbutamide) was included in this study, it is prudent from a safety standpoint to consider that this warning may also apply to other oral hypoglycemic drugs in this class, in view of their close similarities in mode of action and chemical structure.

PRECAUTIONS: **Renal and Hepatic Disease**: The metabolism and excretion of GLUCOTROL may be slowed in patients with impaired renal and/or hepatic function Hypoglycemia may be prolonged in such patients should it occur

Hypoglycemia: All sulfonylureas are capable of producing severe hypoglycemia Proper patient selection, dosage, and instructions are important to avoid hypoglycemia Renal or hepatic insufficiency may increase the risk of hypoglycemic reactions Elderly, debilitated or malnourished patients and those with adrenal or pituitary insufficiency are particularly susceptible to the hypoglycemic action of glucose-lowering drugs Hypoglycemia may be difficult to recognize in the elderly or people taking beta-adrenergic blocking drugs Hypoglycemia is more likely to occur when caloric intake is deficient, after severe or prolonged exercise, when alcohol is ingested, or when more than one glucose-lowering drug is used

Loss of Control of Blood Glucose: A loss of control may occur in diabetic patients exposed to stress such as fever, trauma infection or surgery It may then be necessary to discontinue GLUCOTROL and administer insulin

Laboratory Tests: Blood and urine glucose should be monitored periodically Measurement of glycosylated hemoglobin may be useful

Information for Patients: Patients should be informed of the potential risks and advantages of GLUCOTROL, of alternative modes of therapy, as well as the importance of adhering to dietary instructions, of a regular exercise program, and of regular testing of urine and or blood glucose The risks of hypoglycemia, its symptoms and treatment, and conditions that predispose to its development should be explained to patients and responsible family members Primary and secondary failure should also be explained

Drug Interactions: The hypoglycemic action of sulfonylureas may be potentiated by certain drugs including nonsteroidal anti-inflammatory agents and other drugs that are highly protein bound, salicylates, sulfonamides, chloramphenicol, probenecid, coumarins, monoamine oxidase inhibitors, and beta adrenergic blocking agents *In vitro* studies indicate that GLUCOTROL binds differently than tolbutamide and does not interact with salicylate or dicumarol However, caution must be exercised in extrapolating these findings to a clinical situation Certain drugs tend to produce hyperglycemia and may lead to loss of control, including the thiazides and other diuretics, corticosteroids, phenothiazines, thyroid products, estrogens, oral contraceptives, phenytoin, nicotinic acid, sympathomimetics, calcium channel blocking drugs, and isoniazid A potential interaction between oral miconazole and oral hypoglycemic agents leading to severe hypoglycemia has been reported Whether this interaction also occurs with the intravenous, topical, or vaginal preparations of miconazole is not known

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 20-month study in rats and an 18-month study in mice at doses up to 75 times the maximum human dose revealed no evidence of drug-related carcinogenicity Bacterial and *in vivo* mutagenicity tests were uniformly negative Studies in rats of both sexes at doses up to 75 times the human dose showed no effects on fertility

Pregnancy: Pregnancy Category C: GLUCOTROL (glipizide) was found to be mildly fetotoxic in rat reproductive studies at all dose levels (5-50 mg/kg) This fetotoxicity has been similarly noted with other sulfonylureas, such as tolbutamide and tolazamide The effect is perinatal and believed to be directly related to the pharmacologic (hypoglycemic) action of GLUCOTROL In studies in rats and rabbits no teratogenic effects were found There are no adequate and well controlled studies in pregnant women. GLUCOTROL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

Because recent information suggests that abnormal blood glucose levels during pregnancy are associated with a higher incidence of congenital abnormalities, many experts recommend that insulin be used during pregnancy to maintain blood glucose levels as close to normal as possible

Nonteratogenic Effects: Prolonged severe hypoglycemia has been reported in neonates born to mothers who were receiving a sulfonylurea drug at the time of delivery This has been reported more frequently with the use of agents with prolonged half-lives GLUCOTROL should be discontinued at least one month before the expected delivery date

Nursing Mothers: Since some sulfonylurea drugs are known to be excreted in human milk insulin therapy should be considered if nursing is to be continued

Pediatric Use: Safety and effectiveness in children have not been established

ADVERSE REACTIONS: In controlled studies the frequency of serious adverse reactions reported was very low Of 702 patients, 11 8% reported adverse reactions and in only 1 5% was GLUCOTROL discontinued

Hypoglycemia: See PRECAUTIONS and OVERDOSAGE sections

Gastrointestinal: Gastrointestinal disturbances, the most common were reported with the following approximate incidence nausea and diarrhea, one in 70 constipation and gastralgia, one in 100 They appear to be dose-related and may disappear on division or reduction of dosage Chloestatic jaundice may occur rarely with sulfonylureas GLUCOTROL should be discontinued if this occurs

Dermatologic Allergic skin reactions including erythema morbilliform or maculopapular eruptions, urticaria pruritus and eczema have been reported in about one in 70 patients These may be transient and may disappear despite continued use of GLUCOTROL, if skin reactions persist, the drug should be discontinued Porphyria cutanea tarda and photosensitivity reactions have been reported with sulfonylureas

Hematologic: Leukopenia agranulocytosis thrombocytopenia, hemolytic anemia, aplastic anemia, and pancytopenia have been reported with sulfonylureas

Metabolic: Hepatic porphyria and disulfiram-like alcohol reactions have been reported with sulfonylureas Clinical experience to date has shown that GLUCOTROL has an extremely low incidence of disulfiram-like reactions

Endocrine Reactions: Cases of hyponatremia and the syndrome of inappropriate antidiuretic hormone (SIADH) secretion have been reported with this and other sulfonylureas

Miscellaneous: Dizziness, drowsiness, and headache have been reported in about one in fifty patients treated with GLUCOTROL They are usually transient and seldom require discontinuance of therapy

OVERDOSAGE: Overdosage of sulfonylureas including GLUCOTROL can produce hypoglycemia If hypoglycemic coma is diagnosed or suspected, the patient should be given a rapid intravenous injection of concentrated (50%) glucose solution This should be followed by a continuous infusion of a more dillute (10%) glucose solution at a rate that will maintain the blood glucose at a level above 100 mg dL Patients should be closely monitored for a minimum of 24 to 48 hours since hypoglycemia may recur after apparent clinical recovery Clearance of GLUCOTROL from plasma would be prolonged in persons with liver disease Because of the extensive protein binding of GLUCOTROL (glipizide), dialysis is unlikely to be of benefit

DOSAGE AND ADMINISTRATION: There is no fixed dosage regimen for the management of diabetes mellitus with GLUCOTROL in general, it should be given approximately 30 minutes before a meal to achieve the greatest reduction in postprandial hyperglycemia

Initial Dose: The recommended starting dose is 5 mg before breakfast Geriatric patients or those with liver disease may be started on 2 5 mg Dosage adjustments should ordinarily be in increments of 2 5-5 mg, as determined by blood glucose response At least several days should elapse between titration steps

Maximum Dose: The maximum recommended total daily dose is 40 mg

Maintenance: Some patients may be effectively controlled on a once-a-day regimen, while others show better response with divided dosing Total daily doses above 15 mg should ordinarily be divided

HOW SUPPLIED. GLUCOTROL is available as white, dye-free, scored diamond-shaped tablets imprinted as follows 5 mg tablet—Pfizer 411 (NDC 5 mg 0049-4110-66) Bottles of 100, 10 mg tablet—Pfizer 412 (NDC 10 mg 0049-4120-65) Bottles of 100

CAUTION: Federal law prohibits dispensing without prescription

More detailed professional information available on request.

ROERIG Pfizer A division of Pfizer Pharmaceuticals
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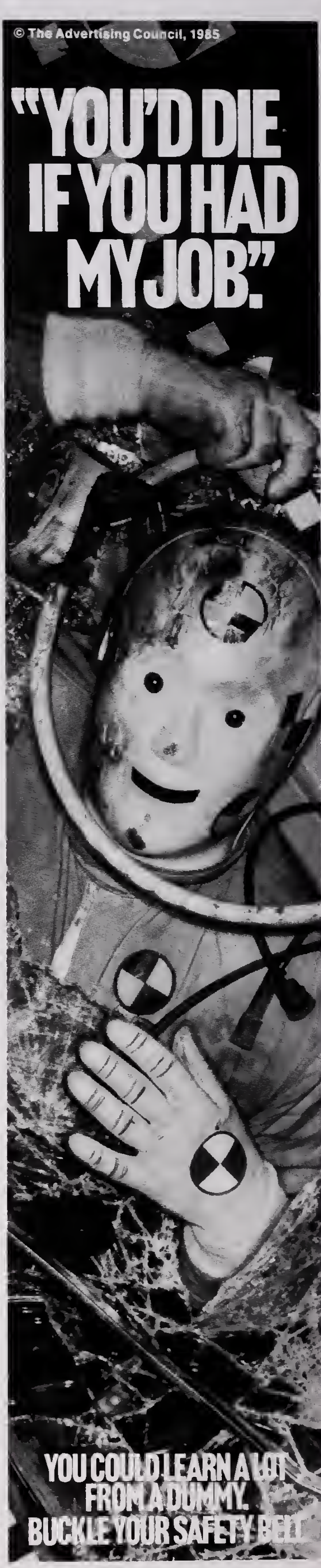
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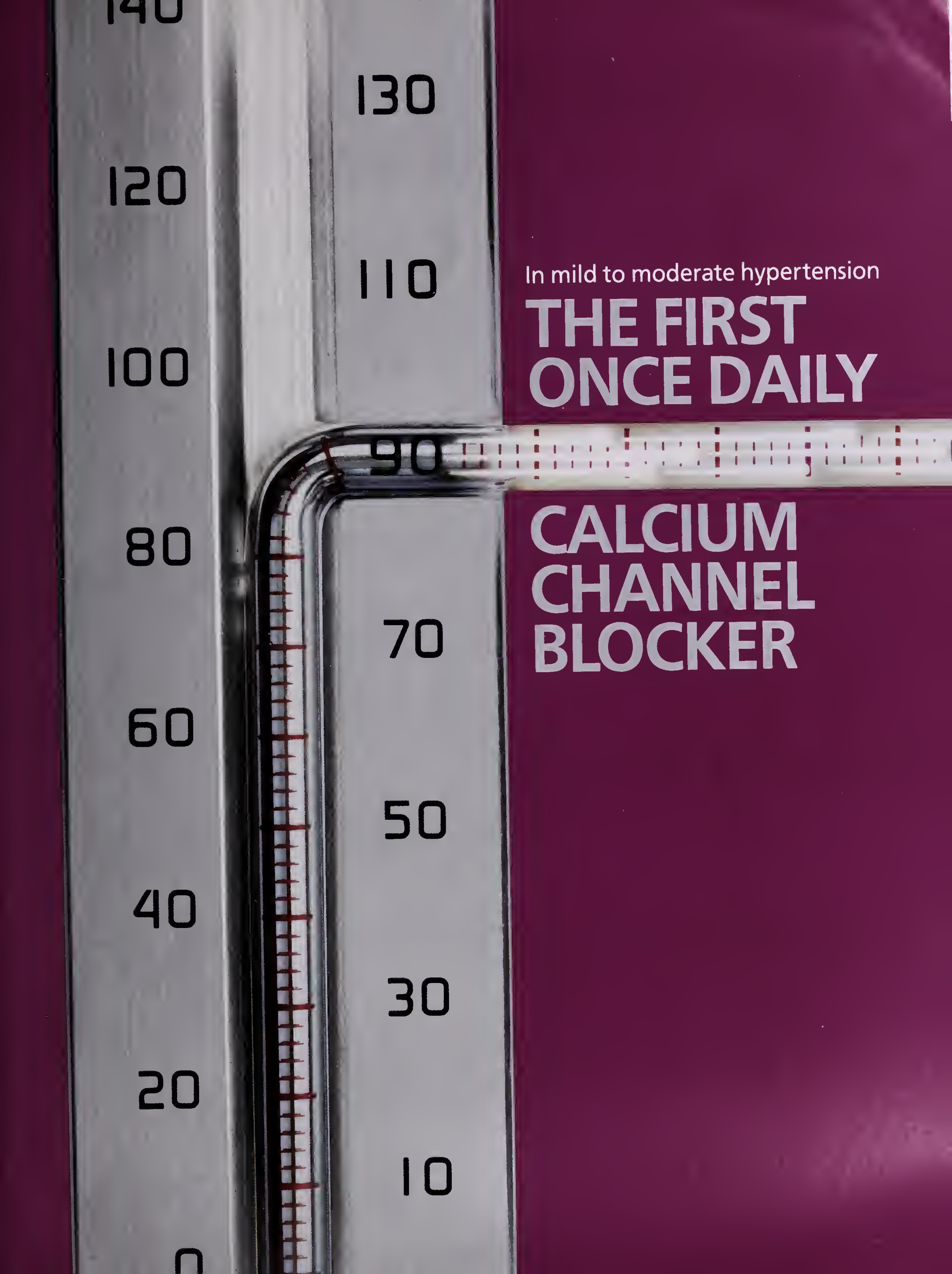
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NEW
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ISOPTIN SR*

(verapamil HCl/Knoll)

240 mg scored, sustained-release tablets

JAMES B.
38, black male, heavy smoker. Prescribed a diuretic by another physician last year for hypertension.

YOUR CONCERNS
Presents with "smoker's cough." Workup reveals a BP of 150/107.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because…
- Black hypertensives often have low plasma renin activity and generally do not respond favorably to beta blockers.
- Beta blockers may increase the likelihood of bronchospasm.

ALICE W.
65, diabetic, overweight. Her BP has elevated to 190/98.

YOUR CONCERNS
She's on daily insulin.

A LOGICAL CHOICE FOR CONTROL OF HER BP
ISOPTIN® (verapamil HCl/Knoll) because…
- Unlike most beta blockers and diuretics, ISOPTIN has no adverse effects on serum glucose levels.
- Unlike most beta blockers, ISOPTIN does not mask the symptoms of hypoglycemia.

THOMAS G.
70, asthmatic. In the past, BP adequately controlled with 25 mg hydrochlorothiazide daily.

YOUR CONCERNS
Today patient presents with symptoms of gout. Workup reveals high uric acid level, low serum potassium, and BP elevated to 180/98.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because…
- Unlike diuretics, ISOPTIN will not decrease serum potassium levels or elevate uric acid levels.
- Unlike beta blockers, ISOPTIN can be used safely in asthma and COPD patients.

JOHN K.
42, Annual physical uncovered diastolic BP of 102… confirmed on three successive office visits. Unresponsive to nonpharmacologic intervention.

YOUR CONCERNS
Salesman, spends many hours of his working day in car… total cholesterol level 300, HDL 35.

A LOGICAL CHOICE FOR CONTROL OF HIS BP
ISOPTIN® (verapamil HCl/Knoll) because…
- Unlike diuretics, ISOPTIN does not cause urinary urgency.
- Unlike either beta blockers or diuretics, ISOPTIN will not adversely affect his already seriously compromised lipid profile.
- Unlike with propranolol, fatigue and impotence are rarely reported.

Antihypertensive therapy you and your patients can live with

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Whippany, New Jersey 07981

BASF Group

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In mild to moderate hypertension
THE FIRST ONCE DAILY CALCIUM CHANNEL BLOCKER

Brief Summary

ISOPTIN® SR
(verapamil HCl/Knoll)
240 mg scored, sustained-release tablets

CONTRAINDICATIONS: 1) Severe left ventricular dysfunction (see WARNINGS), 2) Hypotension (less than 90 mmHg systolic pressure) or cardiogenic shock, 3) Sick sinus syndrome or 2nd or 3rd degree AV block (except in patients with a functioning artificial ventricular pacemaker).

WARNINGS: Heart Failure: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (see DRUG INTERACTIONS). Patients with milder ventricular dysfunction should, if possible, be controlled before verapamil treatment. Hypotension: ISOPTIN (verapamil HCl) may produce occasional symptomatic hypotension. Elevated Liver Enzymes: Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Periodic monitoring of liver function in patients receiving verapamil is therefore prudent. Accessory 8ypass Tract (Wolff-Parkinson-White): Patients with paroxysmal and/or chronic atrial flutter or atrial fibrillation and a coexisting accessory AV pathway have developed increased antegrade conduction across the accessory pathway producing a very rapid ventricular response or ventricular fibrillation after receiving intravenous verapamil. While this has not been reported with oral verapamil, it should be considered a potential risk. Treatment is usually D.C.-cardioversion. Atrioventricular Block: The effect of verapamil on AV conduction and the SA node may cause asymptomatic 1st degree AV block and transient bradycardia. Higher degrees of AV block, while infrequent (0.8%), may require a reduction in dosage or, in rare instances, discontinuation of verapamil HCl. Patients with Hypertrophic Cardiomyopathy (IHSS): Although verapamil has been used in the therapy of patients with IHSS, severe cardiovascular decompensation and death have been noted in this patient population.

PRECAUTIONS: Impaired Hepatic or Renal Function: Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered. Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

AOVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

OVEROOSAGE: Treatment of overdosage should be supportive. Beta-adrenergic stimulation or parenteral administration of calcium solutions may increase calcium ion flux across the slow channel, and have been used effectively in treatment of deliberate overdosage with verapamil. Clinically significant hypotensive reactions or fixed high degree AV block should be treated with vasopressor agents or cardiac pacing, respectively. Asystole should be handled by the usual measures including cardiopulmonary resuscitation.

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national health observances

MARCH 1987

Hemophilia Month. National Hemophilia Foundation, 110 Green Street, Room 406, New York, NY 10012. (212) 219-8180. Materials: posters, educational materials. CONTACT: Lisa Flan.

Mental Retardation Month. Association for Retarded Citizens, National Headquarters, P.O. Box 6109, Arlington, TX 76006. (817) 640-0204. Materials: pamphlets, posters. CONTACT: Liz Moore.

National Eye Donor Month. Eye Bank Association of America, 1511 K Street NW., Suite 830, Washington, DC 20005-1401. (202) 628-4280. Materials: not yet determined. CONTACT: Tom Moore.

National Kidney Month. National Kidney Foundation, 2 Park Avenue, New York, NY 10016. (212) 889-2210. Materials: promotion kit distributed to local chapters. CONTACT: local chapters or Gigi Politoski at the national office.

National Nutrition Month. American Dietetic Association, Sales Department, 430 North Michigan Avenue, Chicago, IL 60611. (312) 280-5000. Materials: pamphlets. CONTACT: Corinne Bronson.

Red Cross Month. American Red Cross, Public Affairs, National Headquarters, 17th and D Streets NW., Washington, DC 20006. (202) 737-8300. Materials: not yet determined. CONTACT: local chapters.

1-7 **National PTA Drug and Alcohol Awareness Week.** National PTA, 700 North Rush Street, Chicago, IL 60611. (312) 787-0977. Materials: not yet determined. CONTACT: Sharon McNeil.

1-7 **National Poison Prevention Week.** National Safety Council, 444 North Michigan Avenue, Chicago, IL 60611. (312) 527-4800. CONTACT: Margaret Gladden, ext. 7207.

7-8 **National Easter Seal Telethon.** National Easter Seal Society, 2023 West Ogden Avenue, Chicago, IL 60612. (312) 243-8400. Materials: none; conducts telethon to raise money. CONTACT: Keith Roberts.

15-21 **National Poison Prevention Week.** Poison Prevention Week Council, P.O. Box 15433, Washington, DC 20013. (301) 492-6580. Materials: packet of materials for organizers. CONTACT: Ken Giles.

22-28 **Children and Hospitals Week.** Association for the Care of Children's Health, 3615 Wisconsin Avenue NW., Washington, DC 20016. (202) 244-1801. Materials: free planning guide, order form for promotional items. CONTACT: Mary Jane Tobin.

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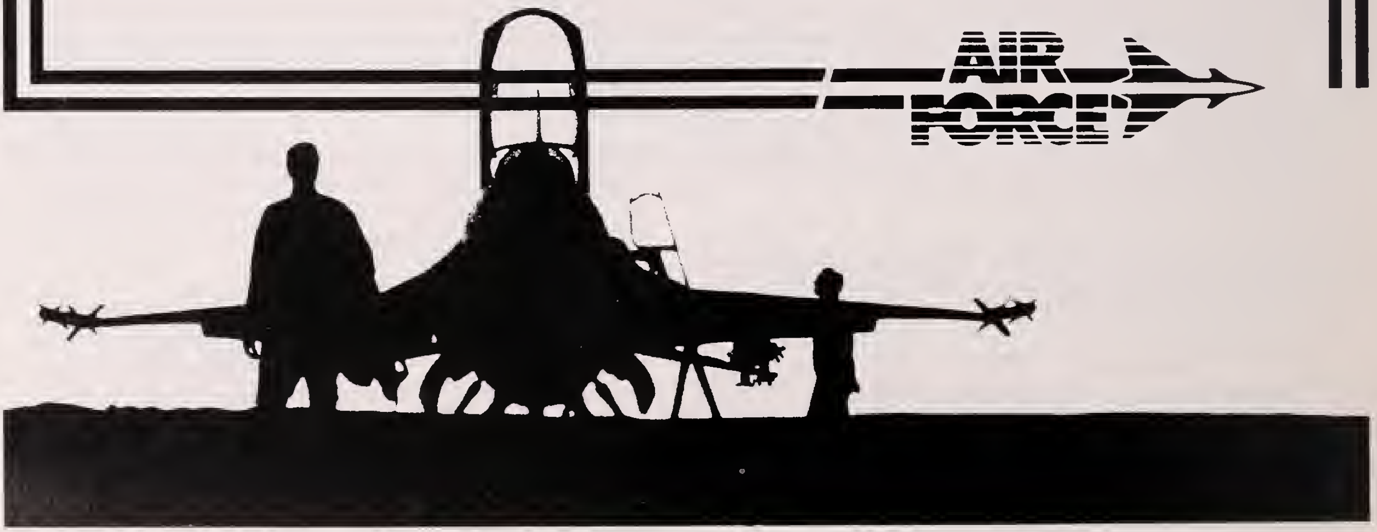

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Aspen Medical Group, a large multispecialty medical group located in the Twin Cities is currently looking for family practitioners to join us. Aspen has eight clinics located throughout the Twin Cities. The family practitioners we are looking for will staff our urgent care department as well as provide primary care to our patients. You will have the opportunity to maintain a clinical and hospital practice and provide urgent care to our patients. We have positions available at our Bandana Square and Maplewood sites beginning March 1, 1987. Please send your CV and references to: Betty Holz-Bergmann, Director of Human Resources, Aspen Medical Group, 1295 Bandana Boulevard North, Suite 310, St. Paul, Minnesota 55108. 3-4/87

Family Practice, West St. Paul, Minnesota: Needs BC/BE family physician to replace retiring physician. Obstetrics a plus. Excellent facilities, comprehensive benefits, and guaranteed salary with option to buy into group. Clinic is well established with six physicians and offers excellent opportunities for growth. Send inquiries to: J.A. Beall, M.D., Westview Clinic, PA, 156 East Emerson, West St. Paul, Minneapolis, Minnesota 55118; (612) 457-6531. 3-4/87

The Berkshire Health System offers the following practice opportunities: Family Medicine — special opportunity available immediately for family physician. Significant growth anticipated during next five years. Small town practice located approximately 20 miles from hospital. Position is with 622-bed tertiary care facility with medical school affiliations located in Berks County, Pennsylvania, two hours from Philadelphia. Position offers competitive compensation package and excellent fringe benefits. Internal Medicine/Family Medicine — hospital-based opportunities with 200-bed hospital serving city of Reading. Financial arrangements negotiatable. Practice growth is anticipated in future. Community offers quality of life of mid-sized city with access to cultural and entertainment areas of Northeast region. Contact: Deborah Anderst, Vice President, Physician Support Services, The Berkshire Health System, Sixth and Spruce Streets, West Reading, Pennsylvania 19611; (215) 378-6459. 3-4/87

Internist wanted immediately to join multipractice group in the lake region of South Dakota. First-year salary guarantee with excellent fringe benefits. Please reply with CV to: Joel Frey, Administrator, Bartron Clinic, PC, 320 7th Avenue SE, Watertown, South Dakota 57201; or call ac(605) 886-8471. 3-4/87

Southwest: Thomas-Davis Medical Centers, a multispecialty group practice network in Tuscon, Tempe, and Green Valley, Arizona, needs an allergist and a dermatologist for its Tempe facility (located in the Phoenix area). First-year guarantee plus incentive. Early shareholder in both medical practice corporation and HMO. Excellent fringe benefits and profit-sharing retirement. Fee-for-service, as well as doctor-owned HMO. Must be board eligible or certified. Call or write: James J. Vitali, Executive Administrator, PO Box 12650, Tucson, Arizona 85732. 2-3/87

St. Peter Regional Treatment Center seeks clinical director and staff psychiatrist. 600-bed MI, MR, CD, Forensic, JCAH accredited. Sarary: 75k to 90k + 30k bonus plan. Full benefits, education leave, U of M Psychiatry Department appointment. One hour from Minneapolis/St. Paul. Many local amenities. Contact: Thomas Stapleton, M.D., SPRTC, St. Peter, Minnesota 56082. 3-4/87

Family Practitioner/WI: BC/BE to join 23-physician multispecialty group. Progressive hospital equipped with CT scanner. Service population of 60,000/80,000 university community. Reply: Administrator, 2501 Main Street, Stevens Point, Wisconsin 54481 or call collect (715) 344-4120. 3-4/87

Twenty-nine Physician Multispecialty Clinic located in desirable east central Wisconsin location is seeking Board Certified or Board Qualified orthopedic surgeon to round out its services. Lab, X-ray, excellent hospital. Liberal guarantee and benefits. If interested contact: D.F. Sweet, M.D., Fond du Lac Clinic, S.C., 80 Sheboygan Street, Fond du Lac, Wisconsin 54935. (R)

BC/BE Internist to join busy internist in established practice. Send CV to: Dr. S. Lagalwar, 280 North Smith Avenue, Suite 434, St. Paul, Minnesota 55102. 2-3/87

Staff Psychiatrist: An opening exists for a general psychiatrist with Hennepin Faculty Associates. Salary and benefits are generous. Requirements are: Board eligibility, Minnesota licensure, and potential for appointment in the Department of Psychiatry at the University of Minnesota. Position would be largely involved with in-patient care of acutely ill patients at Hennepin County Medical Center, and/or Metropolitan Medical Center. This would be in association with over a dozen other full-time psychiatrists engaged in clinical care, teaching, research, and forensics. Contact: William W. Jepson, M.D., Chief of Psychiatry, Hennepin County Medical Center, 701 Park Avenue South, Minneapolis, Minnesota 55415; (612) 347-5764. (R)

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Family Practitioner: Marshfield Clinic-Colby Center is seeking a Board Certified/Board Eligible family practitioner to join another family practitioner in an established office-based group practice in Colby, Wisconsin. The Colby Center offers the family practitioner the autonomy of a private, primary care practice, plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges but without the distractions of OB or surgical responsibilities. Excellent salary and benefits. Please send CV to: Robert Peterson, Director, Regional Services, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449, or call collect at (715) 387-5498. *3-4/87

Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

Medical Practice Sales and Appraisals: We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice, contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, Pennsylvania 19004; (215) 667-8630. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Physicians Needed Over 400 opportunities nationwide!! Call (612) 786-1929 or send CV to: Earl Czech, North Central Staff Services, Inc., 4175 Lovell Road, Suite 108, Circle Pines, Minnesota 55014. 1-3/87

Green Bay, Wisconsin: 27-physician multispecialty group seeking BC/BE physicians in the following specialties: Family Practice, Ophthalmology, ENT, Dermatology, Plastic Surgery, Radiology, OB-GYN, Internal Medicine, and Pediatrics. Green Bay is a progressive community with an easy lifestyle, ample outdoor activities, excellent schools, and cultural activities. The Clinic offers competitive salary and excellent fringe benefits. Interested physicians please contact: W.J. Mommaerts, Administrator, West Side Clinic, sc, PO Box 19070, Green Bay, Wisconsin 54307-9070. 4-3/87

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

General Internist to join our group of five family practitioners, one obstetrician, and one surgeon. We are located in a central Minnesota community of 9,000. Most aspects of internal medicine are available to this already established practice, including gastroscopy and invasive cardiovascular monitoring. Competitive salary with option to buy into group after one year. For information contact: Michael Neudecker, M.D., Medical Center PA; 209 First Street SE, Little Falls, Minnesota 56345; (612) 632-6611. (R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Physician or General Internist needed for an established primary care clinic of four family physicians and a general surgeon. Guaranteed first-year salary with benefit program. Located in a small town on the beautiful north shore of Lake Superior (service area population of 12,000) only 22 miles from Duluth, which provides excellent referral and continuing education resources. Call collect: (218) 834-2171, or write: Steve Bjorum, Executive Director, Community Health Center, Inc., 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Family Physician to join group of six board certified family practitioners and one board certified general surgeon. Liberal vacation and educational allowances. $50,000 salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in Southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, Minnesota 56013; phone (507) 526-7371; personal phone (507) 526-3177. Marjeane Werner, Clinic Administrator; phone (507) 526-7371; personal phone (507) 854-3682. (R)

Emergency Medicine: Emergency physicians needed to staff clinic and hospital emergency room. Multispecialty group located in ideal area 90 minutes from Minneapolis/St. Paul, excellent schools, etc. 132-bed hospital has an active educational program including ACLS. Contact: Richard W. Golly, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. (R)

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Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, internal medicine with interest in pulmonary medicine or cardiology, ear/nose/throat, and obstetrics/gynecology. Bemidji Clinic is a 24-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or N.A. Skogerboe, M.D., Medical Director; (218) 751-1280. (R)

Wanted: Family Practitioner—Ob/Gyn Group practice, central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (755), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

OB-GYN needed for busy, modern practice with one female board certified OB-GYN in suburban St. Paul. Extremely flexible hours to accommodate personal lifestyle. Generous benefit package plus liberal vacation time and paid continuing education. Salary first year. Early partnership; (612) 455-3200. (R)

Family Practice, Internal Medicine, and General Surgery positions available at the Faribault Clinic. The Clinic is composed of eight family practitioners, two internists, and a general surgeon. Faribault is a community of 17,000 located 50 miles south of Minneapolis. Contact: Ken Smith, Administrator, Faribault Clinic, 924 NE First Street, Faribault, Minnesota 55021; (507) 334-3921. (R)

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's 13th largest lake. Good hunting and fishing. Modern 9-year-old hospital. Twenty miles to university campus. Call or write: Robert Bosl, M.D., Starbuck Clinic, PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Family Physician/Emergency Room: Full-time salary working weekends, primarily emergency room. Flexibility available. Falls Medical Center, PA, 105 Shorewood Drive, International Falls, Minnesota 56649. Please contact: Douglas A. Johnson, M.D., or A. Mare Gorden, M.D., at (218) 283-9431 for more information. (R)

Family Practitioner and General Internist to join 7-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

Suburban FP Group—SHARE affiliate—seeks associate to service rapid practice growth. Competitive salary and benefits. Unique opportunity to establish your practice. Contact: Gloria M. Vierling, Sundance Medical Clinics, Ltd., 323 Naumkeag Street, PO Box 9, Shakopee, Minnesota 55379; (612) 445-6440. (R)

For Sale—Family practice with or without clinic. County seat community. Excellent school, hospital, nursing home, nursing staff. Clinic—6 exam rooms, X-ray, lab, etc. Will finance and assist in establishing new M.D. Contact: H.A. Knoche, M.D., Gaylord Clinic, Ltd., 315 4th Street, Box 267, Gaylord, Minnesota 55334; (612) 237-2528. 6-4/87

FP/GP Locum Available for Work Lic. Minnesota, Wisconsin, SD, ND, Colorado, Utah, Missouri. Contact: Dr. Olin, 21450 Excelsior Boulevard, Excelsior, Minnesota 55331; (612) 474-1050. (R)

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Board Certified Internist, Oncologist, or Gastroenteriologist (willing to do General Internal Medicine) to join expanding group of Internists with offices in downtown Minneapolis and western suburb. Excellent benefits and earning potential. Opportunity to work with young academically motivated group. Please contact: Dr. R.W. Kaufman or Dr. J.P. Kieley; (612) 339-7171. (R)

General Surgeon: Chisago Health Services is seeking a board certified surgeon to join its 13 physicians. CHS operates Medical Centers in Chisago City, Wyoming, and North Branch and the Chisago Lakes Hospital. The Chisago Lakes area is located 35 miles northeast of the Twin Cities. Excellent salary and benefits. Contact: Scott Wordelman, President, Chisago Health Services, Chisago City, Minnesota 55013. (612) 257-2500. 4-3/87

Suburban Pediatric Group has opportunity for board certified or eligible pediatrician. Subspecialty interest in allergy helpful. Busy, diverse practice with good compensation and fringe benefit package. Contact Gene Inett, Administrator, Metropolitan Pediatric Specialists, PA, 416 Southdale Medical Building, Edina, Minnesota 55435; (612) 920-9191. 3-3/87

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Orthopedic Surgeon Board Certified/Board Eligible to join an existing one-physician orthopedic department in a 24-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

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Attention Physicians: Mount Sinai Hospital in Minneapolis, Minnesota, currently has several openings for part-time positions in the Emergency Room. Interested physicians should contact Karen DeGrio, Mount Sinai Hospital, 2215 Park Avenue South, Minneapolis, Minnesota 55404; (612) 872-5735. 2-4/87

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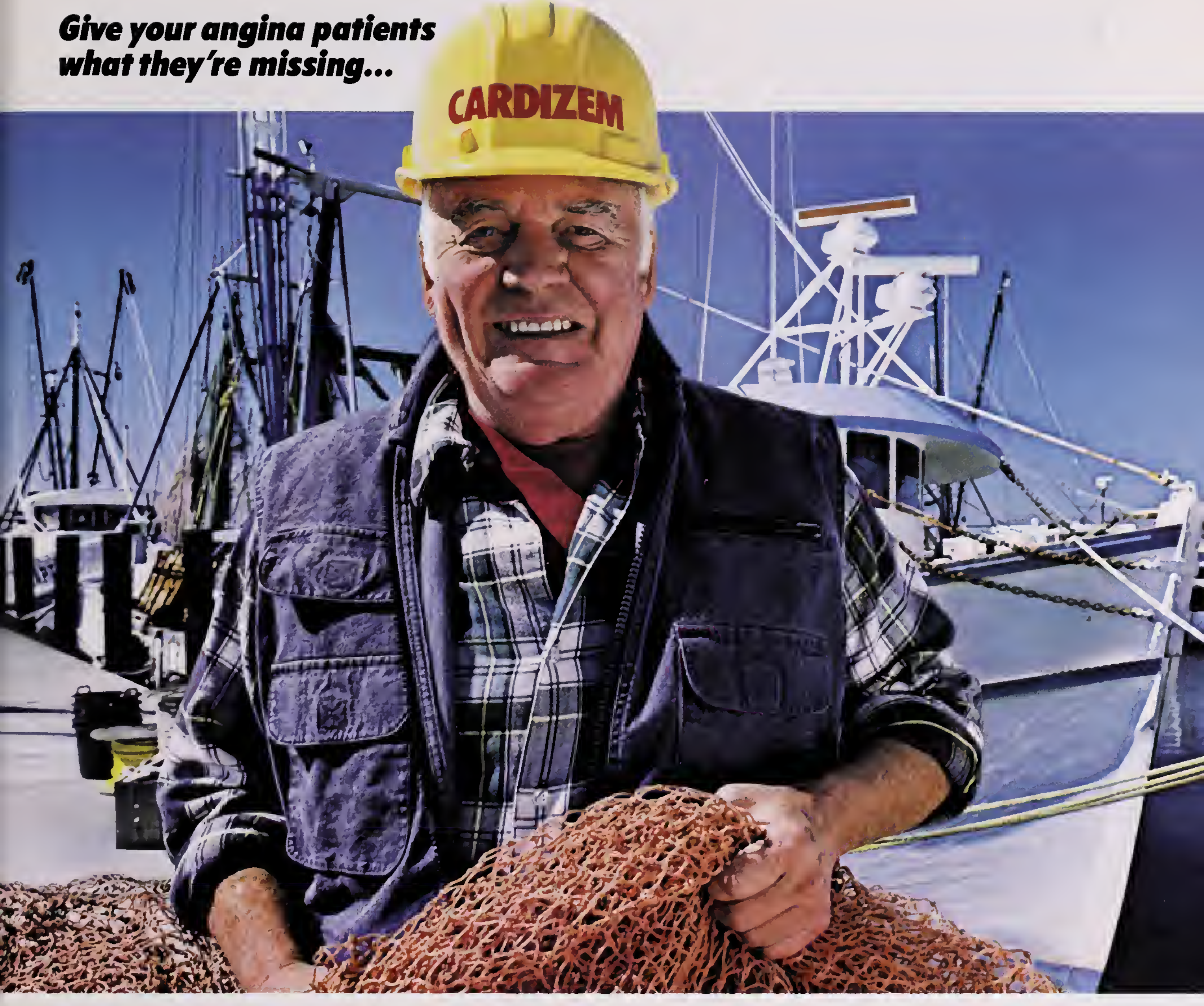

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Please see brief summary of prescribing information on the next page.

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Professional Use Information

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CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).
   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury.** In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes, however, these changes were reversible with continued dosing.

Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women, therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.
Nervous System:	Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.
Gastrointestinal:	Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.
Dermatologic:	Petechiae, pruritus, photosensitivity, urticaria.
Other:	Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

Issued 7/86

See complete Professional Use Information before prescribing.

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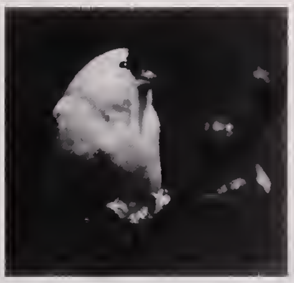
Southern Minn. Med. Assn.



Cover Photograph

American Goldfinch in Spring

D. G. Mahle, M.D., shot the cover photograph one spring morning in his backyard in Wabasha, Minnesota, using a Pentax camera and Kodachrome ASA 64 film. Dr. Mahle, a nature photographer, birdwatcher, woodworker, and fisherman, retired in 1976 after 40 years in general practice.

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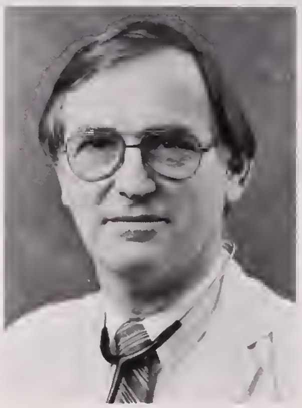
Family Practice Physician



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CELLULAR ONE–SECOND TO NONE

A Foreword

This issue of *Minnesota Medicine* contains two pieces on AIDS.

The First

The first, "Predicted Disease Impact of Acquired Immunodeficiency Syndrome in Minnesota: Five-Year Projection Models for a Low-Incidence State," has a self-explanatory title and comes out of the Acute Epidemiology Section of the Minnesota Department of Health.

The conclusion?

"Based on three case-number doubling models presented, we predict that between 1986 and 1990, 1,246 to 1,860 new cases of AIDS will occur with 840 to 1,209 deaths. From 23,510 to 33, 847 person-years of potential life lost (YPLL) prior to age 65 will be attributable to AIDS. By 1990, YPLL for AIDS will exceed all other causes of YPLL for single, never-married men ages 25 to 44 in Minnesota. Estimates of cumulative direct health care costs for the five-year period range from $30 million to $43 million . . . . Estimates of indirect morbidity costs, a disability measure, range from $18 million to $27 million, and indirect mortality cost estimates add another $480 million to $691 million."

The Second

The second, "AIDS: Some Ethical Considerations," comes to our pages from the Philosophy Department of the University of Minnesota. The author, H. E. Mason, observes:

"Public measures with some promise of preventing the spread of the disease are bound to threaten the civil liberties of people in the groups at risk, and the increasing burden of caring for patients stricken with the disease seems likely to strain health care facilities . . . and could, without vigilance, lead to an unfair and even inhumane curtailment of services."

The Dilemma

Thus, we have the classic public health dilemma: how to balance the individual's right to privacy with the public's right to take stiff measures to thwart an epidemic. But AIDS has added two other dimensions: 1) the enormous stigma and discrimination faced by people known to carry the AIDS virus; and 2) the ominous reality that the disease attacks mostly the young, depriving this nation of many of its most productive citizens in the prime of life.

The Responsibility

As Editor, I believe *Minnesota Medicine* has the responsibility to print articles that describe the dimensions of the dilemma. We also have the responsibility to keep AIDS in perspective. As you read these two articles and following tables, keep your anxiety in perspective by remembering that Minnesota is a low incidence state. As of January 26, 1987, Minnesota had 156 AIDS cases and 87 patients had died.

TABLE 1
Minnesota AIDS cases

Transmission Categories	No. (%)
Homosexual/bisexual male	133
Intravenous IV drug abuser	4
Homosexual male & IV drug abuser	10
Homophilia/coagulation disorder	3
Transfusion, blood/components	1
Heterosexual cases	3
Undetermined	2

*Source: Minnesota Department of Health, Disease Control Newsletter, Jan/Feb 1987.

TABLE 2
Federal planning assumptions: prevalence of AIDS virus infection

MEN	Five states with highest prevalence*	Five states with lowest prevalence†
TOTAL	3.34%	0.07%
20 to 29 years old	3.4	0.09
30 to 39 years old	11.1	0.21
40 to 49 years old	7.4	0.21

WOMEN	Five states with highest prevalence**	Five states with lowest prevalence†
TOTAL	0.38%	0.004%
15 to 19 years old	0.04	0
20 to 29 years old	0.78	0.01
30 to 39 years old	1.3	0.007
40 to 49 years old	0.43	0

*California, District of Columbia, Florida, New York, Texas.
†Idaho, Montana, North Dakota, South Dakota, Wyoming.
**Connecticut, District of Columbia, Florida, New Jersey, New York.
Source: Centers for Disease Control
NOTE: The Centers for Disease Control calculates infection rates on the rough estimate that for every person reported with AIDS another 50 are carriers of the virus who have not developed the disease. Four of every five AIDS cases reported to federal authorities so far have involved homosexual men or intravenous drug users.

The Lessons

AIDS is something to be informed about; it is something to educate others about; and it is not yet something to panic about. The lessons I have learned from reading the two AIDS articles in *Minnesota Medicine* are these: be faithful, be chaste, be safe, and be fair. Since you can't always be all of these things at the same time, at least be in the know.

RLR

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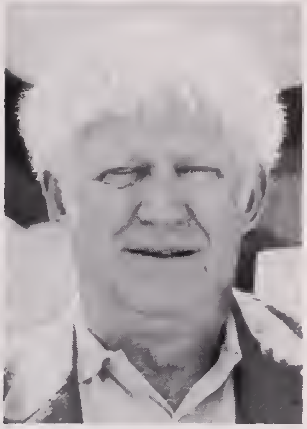
editor's notebook

A visit in Litchfield with Doctor Bill Nolen

Peter J. Dorsen, M.D.



William Nolen, M.D.

EDITOR'S NOTE: Bill Nolen died at age 58 on December 10, 1986, after a quintuple coronary bypass procedure at the University of Minnesota Hospital. Bill had undergone two previous bypasses. He suffered three heart attacks in the week of his last surgery. Bill was a blunt man who faced his facts straight. He must have known the odds. His father had died at about the same age, and Bill, an Irishman, was fond of noting: "Sooner or later, every Irishman knows the world will break your heart." The world may have broken his heart, but it did not crush his spirit. Wherever you are, Bill, may the sun shine in your face, may the wind be at your back, and may God hold you in the hollow of his hand.

Enough eulogizing by me, now for a Bill Nolen vignette by Peter Dorsen. Periodically, I use "Editor's Notebook" to showcase talents of a member of the Board of Editors. In his heart, Peter Dorsen, an internist who cares for the employees of Abbott Northwestern Hospital, is a writer. He has written a number of human interest stories for Twin Cities magazines and newspapers. Here he shares his thoughts about Bill Nolen.

RLR

"So you want to be a writer?" Bill Nolen asked, peering over bifocals during lunch at his local hangout, The Farmer's Daughter Restaurant in Litchfield. I wasn't sure how to answer. His literary success and celebrity intimidated me, but I offered a weak affirmative.

It had been a tense 70-mile, two-hour drive on the single-lane highway from Minneapolis. I was delayed behind slower cars and trucks. Passing was all but impossible, and my car kept overheating. Still 20 miles from my goal and late, I stopped at a 7-11 to call to say I was delayed. That I was late added to my nervousness about meeting the renowned and controversial surgeon and writer.

It had taken fast talking when I had first tracked him from the Litchfield Clinic, the surgery department at Meeker County Hospital, and finally to his basement study where he was doing his daily two or so hours of writing. I explained that I was in private practice, was a review editor for *Minnesota Medicine*, our state medical journal, and a reviewer for *JAMA*. I quickly described my newfound passion for writing.

"Lunch Thursday!" he had said. Suddenly I was committed. It was too late to back out.

I knew Bill Nolen was not a modest man. At the start of our lunch, he volunteered that it was unusual for him to commit so much time to anyone, especially when he had so many projects pending.

"I do surgery several mornings a week and then write for an hour or two before lunch. Two days a week I see patients for a few hours in the afternoon and then write some more either at home or in the clinic. I read every night from 7:00 to 11:00 and finish about three books a week." His energy, order, and knowledge of current literature were impressive. Throughout our conversation, I felt like I was running 15 to 30 seconds behind as he listed writers or reviews he was reading or had read.

We sat near the bar; Dr. Nolen sipped iced tea while I downed hot decaffeinated coffee. Our meeting was private as only it could have been in so small a town, although Dr. Nolen would frequently nod or barely wave to townspeople coming or going through the bar as we ate. No one came to the table to break our spell of privacy. He maintained an aura about him. Everyone was aware of his celebrity status but treated him the same as anyone else in the community. I could feel the compassion that he must have conveyed to his patients in this sleepy Minnesota farm town he had chosen to replace his own New England catholic birthplace.

At first his sang froid about writing surprised me: "Oh, I did very well writing that column for *McCalls*, but the best thing you can do is write a book. Then you can serialize it."

I recalled his first novel, *The Making of a Surgeon*. It had brought notoriety to hitherto undiscovered Litchfield. This autobiography of Bill Nolen's surgical residency at Bellevue would begin his dual career as a surgeon and writer. Additionally, he had made at least twenty-five appearances on "The Johnny Carson Show" as well as twice monthly visits with the popular afternoon TV-host show, "Good Company."

He had spliced the time into a busy surgical schedule to write: *A Surgeon's World, Healing: A Doctor In Search of a Miracle, A Surgeon's Book of Hope, Surgeon Under the Knife* (locally controversial about his own bypass surgery), and *Baby in the Bottle: Space Parts for the Human Body*, a book for young readers. Despite what sounded like a grueling PR campaign, he admitted that he had been disappointed in sales from his eighth and last book, *Crisis Time! Love, Marriage and the Male at Midlife*. He wondered out loud whether a visit on the "Phil Donahue Show" might have made a difference. He also published numerous articles explaining some of medicine's mysteries to the lay public. This literary outlet helped him support his six children.

"A woman from *Mpls./St. Paul* magazine came out several times and did a good job interviewing me." Looking at my official-looking yellow pad, he said "You didn't plan to interview me, did you?"

"No, not right now," I hedged. Pushing aside the pad, I pulled out a small pile of writing I had done. "I wanted to show you some of the things I have written and get your thoughts. I had thought of interviewing you many times over the years."

With his usual candor, he remarked, "If the best you can get for an article is $500 to $1000, it's a good thing that you're a doctor. Surgery has been good to me financially. I could never have made it on just my writing, not with putting all my kids through Ivy League schools." Commenting on the economics of medicine, he added, "I can still do one or two cases a week and be comfortable. You internists really need to crank it out to make it."

He reassured me that medicine was indeed a fine preparation for a writing career, citing a common friend, Dr. Tim Rumsey from St. Paul. In his fatherly way he added, "I was disappointed in the review the *New York Times* gave him."

I was haunted by his fatalism. He admitted that he did not expect to be alive five years from the time of our visit. This ominous prediction made all the more valuable the two hours we spent together. After all, he had already undergone two coronary bypass operations. Yet, it was he who chose the omelette, somehow defying his own literary prescription for an incredibly high triglyceride value, one risk factor in his own coronary artery disease. He seemed to confirm the old adage, "Do as I say not as I do."

Together, we drove back to his home after our lunch. His home exuded comfort: oriental carpets, books everywhere. When I asked him what his plans were for the afternoon, he said it was time for his afternoon nap. "I take so many pills now!"

It was difficult to imagine how this imposing geyser of energy could slow down enough to take a nap. We ended our visit after he agreed to come out onto the front porch so that I could take his picture. Our visit over, he disappeared into his modest home in quiet, conservative Litchfield.

Bill Nolen died six months later.

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president's letter

Unsolved and Worrisome

In 1907 an unnamed editorialist in the *St. Paul Medical Journal,* the forerunner of *Minnesota Medicine,* wrote "It is almost a foregone conclusion that the next century, possibly the present century, will witness the practical extinction of all those diseases which are caused by microbic invasion of the human organism." The author clearly intimated that medicine would quickly solve its major problems.

James F. Knapp, M.D.

Today we are not so naively optimistic that we've conquered the major maladies of mankind. To the contrary, old problems persist and new ones arise; some of the difficult ones are microbic, but others are societal. Three very different unsolved and worrisome problems come quickly to mind.

■ **The Uninsured in Minnesota** — This fall's MMA Task Force on Rural Health survey indicated that our rural doctors are seeing more patients who lack adequate health insurance coverage. The Coalition on Health learned that some farmers, people in small rural businesses, and the unemployed from economically depressed rural areas are going without insurance or raising their deductibles to $500 or $1,000.

The Minnesota Department of Health in its October 1986 report states that "Over 450,000 Minnesotans, or 1 of 9 residents, have no health insurance for at least part of the year (46% for part of the year and 54% for the entire year). These people rely on the charity care system that includes public hospitals, nonprofit community clinics, public health programs, and private health care providers. Historically, Minnesota doctors have had 5% to 10% of their billings go uncollected. For some of our rural physicians that figure is now 15% to 18%.

Solutions require finding the revenue to cover those people who do not have the financial capability to obtain health insurance for themselves. Several sources have been suggested including: general state revenue; federal, state, and county revenues; Medicaid funds that include this new group of beneficiaries; a higher level of mandated employer participation; a tax on providers of health services; and an assessment on health plans. The Minnesota Medical Association must enter the debate on how to include this underserved group in the mainstream of medicine.

■ **Mental Health** — Mental health in Minnesota has been described as a "non-system" by Governor Perpich's Commission on Mental Health. The need for services is increasing; the availability of services and the ability to pay for them is decreasing. More than half of the rural physicians surveyed this fall described a crisis in access to mental health services in Minnesota. Mental health treatment is often unpredictable and success often based on long-term treatment with open-ended costs. Frequently, those in need of mental health care have few personal financial resources. For these reasons, insurers have been forced to dramatically limit benefits and avoid adverse selection whenever possible.

The Commission on Mental Health has recommended the Legislature organize a statewide controlled system for community mental health care supervised by a department of mental health and mandate more insured benefits for both inpatient and outpatient care. This system would emphasize quality of care issues and equal access by need.

The MMA Rural Health Task Force agrees with the commission's assessment of the problem but would approach it somewhat differently. Our task force would not reinvent the community system of the early 1970s. Instead, we would develop a hotline consulting and referral system like the metropolitan area's "First Call For Help," expand continuing medical education on mental health for primary care M.D.s, investigate with the Legislature a higher level of mental health coverage by third-party payers, and avoid duplication and waste of scarce health care dollars.

■ **AIDS (Acquired Immunodeficiency Syndrome)** — Obviously unrecognized as a problem in 1907, AIDS is the plague at the close of this century. By now we may feel over educated about this disease; we've been bombarded by newspaper and magazine articles, documentaries, public health announcements, and scientific data. But like nuclear war, it is difficult to visualize the consequences. A Minnesota Department of Health study and a discussion of AIDS-related ethical dilemmas published in this issue of *Minnesota Medicine* will help develop your perspective on this devastating problem.

JFK

perspectives

AIDS: Some ethical considerations

H. E. Mason, Ph.D.

Dr. Mason is a professor of philosophy at the University of Minnesota in Minneapolis.

The AIDS epidemic confronts the public with a number of very serious ethical questions. Both the control of the epidemic and the care of those stricken with the disease pose ethical questions that will almost certainly become more difficult as the epidemic takes its course. Public measures with some promise of preventing the spread of the disease are bound to threaten the civil liberties of people in the groups at risk, and the increasing burden of caring for patients stricken with the disease seems likely to strain health care facilities in ways that will require a creative use of available resources and could, without vigilance, lead to an unfair and even inhumane curtailment of services.

The particular ethical questions raised by these problems are difficult enough. Their evenhanded and thoughtful consideration is made much more difficult by the widespread and natural public apprehension over AIDS and by the fact that gay men, the largest group at risk, have long suffered discrimination and continue to be regarded with disdain and even contempt by a great many people. History has given homosexuals, whether gay or lesbian, little reason for confidence that their civil liberties will be protected and their sufferings humanely treated in difficult times. Because of that history, measures that even appear to threaten civil liberties or foreclose humane treatment must be given particular scrutiny. But it must also be recognized that AIDS is a lethal disease, reasonably arousing public apprehension and possibly justifying extraordinary measures. What is needed is a way of fairly and deliberately considering the justification for any such measures, judging their need and likely effectiveness against the apparent costs in a way that minimizes the effects of these immediate fears and traditional hostilities.

Specific Ethical Issues

Not all of the measures of control raise serious ethical questions. Broad public education on the means of transmission of AIDS may offend the squeamish, but its justification can hardly be questioned on those grounds. Explicit description of safe sexual practices will be condemned in some quarters as encouraging immoral activities, but the gravity of the danger to people who engage in sexual activity without knowing which practices are safe is clearly sufficient to justify that form of sex education. There is no comparison between the doubtful harm a person suffers from engaging in the activities in question and what he would suffer were he to contract AIDS. The free public supply of clean hypodermic needles and syringes to intravenous drug users is perhaps more controversial, but the fact that users are likely to continue to use drugs in any case, conjoined with the gravity of the danger of contracting AIDS, suggests that that danger should be addressed independently of efforts to control drug use. Recent evidence that a much smaller percentage of intravenous drug users are infected with the AIDS virus in areas in which clean needles and syringes are available without prescription underlines the importance of making clean needles and syringes readily available.

Advances in the scientific understanding of the transmission of AIDS have suggested that some other methods of control are almost certainly unnecessary. It is only reasonable for parents to wish their children to be protected from any exposure with a chance of infecting them with the AIDS virus. Demands that children or teachers carrying the AIDS virus be dropped from a school can be presumed to have that reasonable motivation. But, if current accounts of the transmission of the AIDS virus are correct, such extreme measures are unnecessary in the context of normal school activities. In defense of the parents, however, it must be said that the sheer rapidity with which our understanding of the means of transmission of AIDS has developed is bound to create skepticism about assurances offered at any particular time. At a somewhat more speculative level, there is a serious ethical question about the degree of certainty it is reasonable to expect in medical and scientific assurances offered in response to understandable concerns that people be protected from a lethal disease.

Testing and Contact Notification

Some of the most serious ethical questions involving the control and prevention of AIDS arise over the use of blood tests to determine the presence of the AIDS virus in a person's blood. Most of the difficulties stem from the fact that because gay men comprise the largest group of people now likely to carry the virus, the test can serve as a marker that a person is gay, and may thus facilitate discriminatory treatment. The Army's proposed policy of discharging any soldier who tests seropositive was protested, not unreasonably, as possibly serving discriminatory purposes. The test itself can only play a somewhat indirect role in the control and prevention of AIDS. If widely used and reported, it can be used for the epidemiological study of the disease. On an individual level, if a person receives a negative test result, he knows he will have some chance of avoiding the disease if he avoids those activities he already knows place him in jeopardy of infection. But so long as there is no effective treatment for AIDS, a person who learns he is seropositive can do nothing to prevent the onset of the disease. What he can do is take steps to avoid transmitting the virus to others and warn those to whom he might have transmitted it. For these reasons, proposals for broad voluntary testing require a remarkable degree of generosity on the part of gay men: a person who takes the test gives evidence of his sexual preference, which under adverse political circumstances might be used against him, and what he can hope to learn from the test primarily serves to protect others. For that reason, if the test is to protect people at risk, scrupulous care must be taken to maintain confidentiality.

That issue becomes critical in consideration of proposals to trace sexual contacts of people infected with the AIDS virus and notify them that they are at risk and possibly capable of infecting others. Both common sense and practice with other diseases suggest that that measure of control holds some promise of effectiveness, and that a person who may have infected others would certainly seem obliged to take steps to inform them of that. But, if the tracing and notification were to be carried out by public agencies obliged to keep records of any contacts notified, it would require the establishment of a publicly maintained record of what would normally be regarded as confidential information. In those circumstances, a person who had possibly infected others might feel that even though he had some obligation himself to inform his contacts of that, he was not free to cooperate in the formation of a publicly maintained record of his contacts' sexual activities. That view is not unreasonable even in circumstances in which it is unlikely that the confidentiality of the records will be violated or the information misused. The obligations we have to respect the privacy of another person's life presumably can be overridden, but not without compelling reasons. What makes this issue particularly difficult is the conjunction of latent suspicions that the information might be misused with reasonable doubts about the effectiveness of notification as a means of control.

Illustrations by Kathleen Berntson

Concerns over the possibility of adverse uses of information are bound to be a continuing source of difficulty in the formation of policies designed to control the spread of the disease. For example, as the disease spreads to the general population, as it inevitably will, the demand for broad mandatory testing will undoubtedly increase. But even mandatory programs require public cooperation, and that degree of cooperation would be unlikely without firm and effective assurances that the information could not be used against a person. To achieve that cooperation we would almost certainly need legislation protecting the civil liberties of populations at risk.

Care of AIDS Patients

These issues turn on questions of individual liberty, privacy, and confidentiality of information. If projections of the future course of the AIDS epidemic are correct, the care of AIDS patients is bound to raise serious questions of distributive justice. The costs are already substantial, and they will almost certainly place great strain on both private and public facilities as the epidemic takes its course. A number of insurance companies have begun to screen for people at risk of contracting AIDS, and others are certain to follow, with the likely consequence of an even greater burden on public facilities. The resulting difficulties may force a fundamental re-thinking of our health care delivery system. The question of the level of care appropriate for patients with no likelihood of recovery is almost certain to be raised with respect to AIDS patients, but it could not reasonably or fairly be restricted to them. Any proposal to restrict the level of care for AIDS patients in view of the mortality rate of patients with the disease would certainly have to be weighed against the treatment given other patients with similar prospects. Experience in San Francisco with a kind of group home care facilitating mutual support for AIDS patients suggests the possibility that a creative approach to the problem of rising costs might lead to more humane arrangements.

General Ethical Perspectives: Utilitarianism

It should be clear from this sketch

that the particular ethical questions AIDS raises form an odd lot turning on a variety of quite different considerations. But it is worth asking whether there is a general ethical perspective that might provide a procedure or even a reasonable basis for addressing those questions and weighing the considerations that bear on them. It is particularly important to ask whether there is a perspective that would enable us to weigh the competing considerations in a sufficiently evenhanded way to minimize the effects of both the immediate fear of AIDS and the historic and surviving hostility toward homosexuals in our society. The most common ethical perspective used in addressing issues of public policy, utilitarianism, is not very sensitive to considerations of this sort. Let me sketch its shortcomings and then suggest an alternative that has more promise.

In a utilitarian calculation, the good a policy is likely to do the public at large is weighed against its likely harm. In the consideration of almost any public project or practice it is standard procedure to weigh its costs against its benefits to the public. Increasing the number of entrances and exits in a stretch of freeway is likely to increase the amount of lane switching and thereby the number of accidents. When laying out a freeway, planners weigh that cost against the expected relief of congestion on connecting streets. When considering adoption of a tighter money policy, economic planners weigh the cost of any unemployment that might result against the relief of inflation it is likely to bring. Deliberations of this sort do not necessarily result in an ethical judgment of the policies under consideration, but they serve as a model for utilitarianism, which is supposed to do that. In a utilitarian deliberation costs are weighed against expected benefits, but the costs and benefits are not restricted to some particular interest of the people in question, an interest in convenient travel, for example, but are supposed to take into account their most fundamental interests. The best course of action is the one that maximizes the satisfaction of those fundamental interests, taking into account the satisfaction and frustration of the interests of everyone involved. That best course of action might involve severe deprivation for some of the people involved. What is crucial is that the overall balance of satisfaction over deprivation be greater then that likely to be produced by any alternative course of action. The resulting judgment is supposed to provide an ethical justification of the course of action.

Some of the issues posed by the AIDS epidemic are reasonably treated in this way. Consider again the question whether intravenous drug users should be given easy access to sterile needles and syringes. That suggestion is motivated by the fact that the use of contaminated needles is almost certainly responsible for the high incidence of AIDS among intravenous drug users. But standing against it is the belief that easier access to needles and syringes would be likely to increase the use of drugs and thereby contribute to all of the problems, personal and social, associated with the use of drugs. In any reasonable treatment of this question those costs must be weighed against an expected, if somewhat unpredictable, decrease in the exposure of users to AIDS. The issue is complicated by uncertainties. It is said, for example, that the sharing of needles is a sufficiently important part of the social practice of drug use that the availability of sterile equipment would make little difference. But the issue is, all the same, one that requires weighing the costs of easier access to needles and syringes against the greater security thereby offered users, and the corresponding benefits to society. It is thus an issue that calls for a kind of utilitarian treatment.

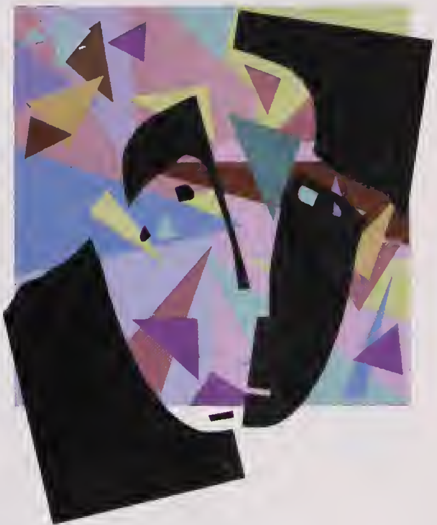
Not many of the ethical issues raised by AIDS could be reasonably addressed in the same way. The question whether intravenous drug users should be given easier access to needles and syringes does not depend on the idea that the interests of drug users should be given special protection. The idea is simply that the interests of the public at large might be better served by a policy likely to reduce the incidence of AIDS in a particular population. But most of the ethical issues raised by AIDS do involve the protection of minority interests, and utilitarianism provides little protection for those interests. Although minority interests are taken into account, they can be outweighed by the interests of a preponderant majority in a conflict situation. In some instances that could lead to serious injustice. Suppose, for example, that there continues to be no prospect of recovery from AIDS. So long as health care resources are limited, satisfaction of the fundamental public interest might be maximized by mandating a sharp curtailment of health care services for people suffering from AIDS. A similar line of reasoning might lead to the justification of a severe curtailment of the civil liberties of members of the groups at risk. The distribution of limited resources often requires hard choices. But examples of this sort suggest that the ethical consideration of those choices requires that overriding weight be given to equity and to respect for individuals, and that the choices not depend solely on what would do the most good for society at large. From the point of view of justice, whether goods are fairly distributed in a society and individual liberties protected is much more important than the general level of welfare.

An Alternative Perspective

These common criticisms of utilitarianism point to a more fundamental failing that is directly relevant to the ethical questions surrounding AIDS. Ethical questions do not arise in a vacuum. If I have agreed to give you one kind of help or another, I owe you an explanation if I fail to do that. If a private physician learns that a bisexual patient is unwilling to inform his wife that he is infected with the AIDS virus, the physician owes the wife an explanation of his own failure to warn her if she becomes infected. She may be ready to accept his explanation, but that seems unlikely if he simply stands on the rule that confidentiality must be maintained at all costs. In these situations a responsible person does not simply ask the abstract question what is the ethical thing to do, or the rational thing to do. He asks how he can explain himself to those affected by his actions. He recognizes his responsibility to those affected in one way or another by what he does or fails to do, and deliberates in light of that. This responsibility, of course, goes in many ways. The physician must be ready to explain himself to the husband as well as the wife, which is just another condition of the ethical problem the physician faces. The fact that an ethical problem has no simple solution, or no solution at all, is no reason to reject it.

Weighing the considerations that bear on an ethical problem takes on a somewhat different cast once it is recognized that a person has a special responsibility to justify his actions to those likely to be affected by it. Most ethical views give a person no particular reason to consult those who might be hurt by his actions, no particular reason to seek them out and hear their objections. Knowing their interests and the commonly accepted moral principles governing cases of the sort in question is considered sufficient. But if we have a special responsibility to justify our actions to those affected by them, their objections become critical. The fact that someone likely to be hurt offers an objection does not show that an action or a policy cannot be justified, but it sets the task for its justification. If the policy is justifiable it must be reasonable to expect affected parties to accept it and withdraw their objections.

This feature of moral deliberation must be familiar to everyone. I stress it because I believe it is of particular importance in considering ethical questions of the sort that arise over AIDS. There are two reasons for insisting that an action or policy be justifiable to those likely to be hurt by it when they are members of a minority that has suffered discrimination and are likely to be alienated from a preponderant majority. It establishes a kind of moral symmetry between their concerns and those of the majority, creating a presumption that must be rebutted if majority concerns are to prevail. It also has a tendency to discourage *a priori* assumptions about their concerns. It is tempting to think that if we know the place of a kind of liberty or a kind of privacy in any person's life we know its place in every person's life, and that what ethical questions there are about that liberty or that privacy can be settled in an *a priori* way. If justifying an ethically questionable practice or policy requires hearing out the objections of those likely to be hurt by it, that easy assumption is put to the test.



Similar and Contrasting Cases

How are the objections offered by a person affected by a practice or a policy to be judged? It is tempting to think that there must be ethical principles that are up to that task, but in daily moral discourse general principles play a much less prominent role than the consideration of similar and contrasting cases. Should a surgeon with the AIDS virus be permitted to operate on patients? The risk that he might accidentally cut himself and infect a patient is perhaps no greater than risks we take daily on the freeway. Contrast this case with one in which a kidney transplant has been proposed for an AIDS patient. In such a case, the flow of infected blood and the many people involved would make the risk prohibitive. Although the pattern of similar and contrasting cases seems to support

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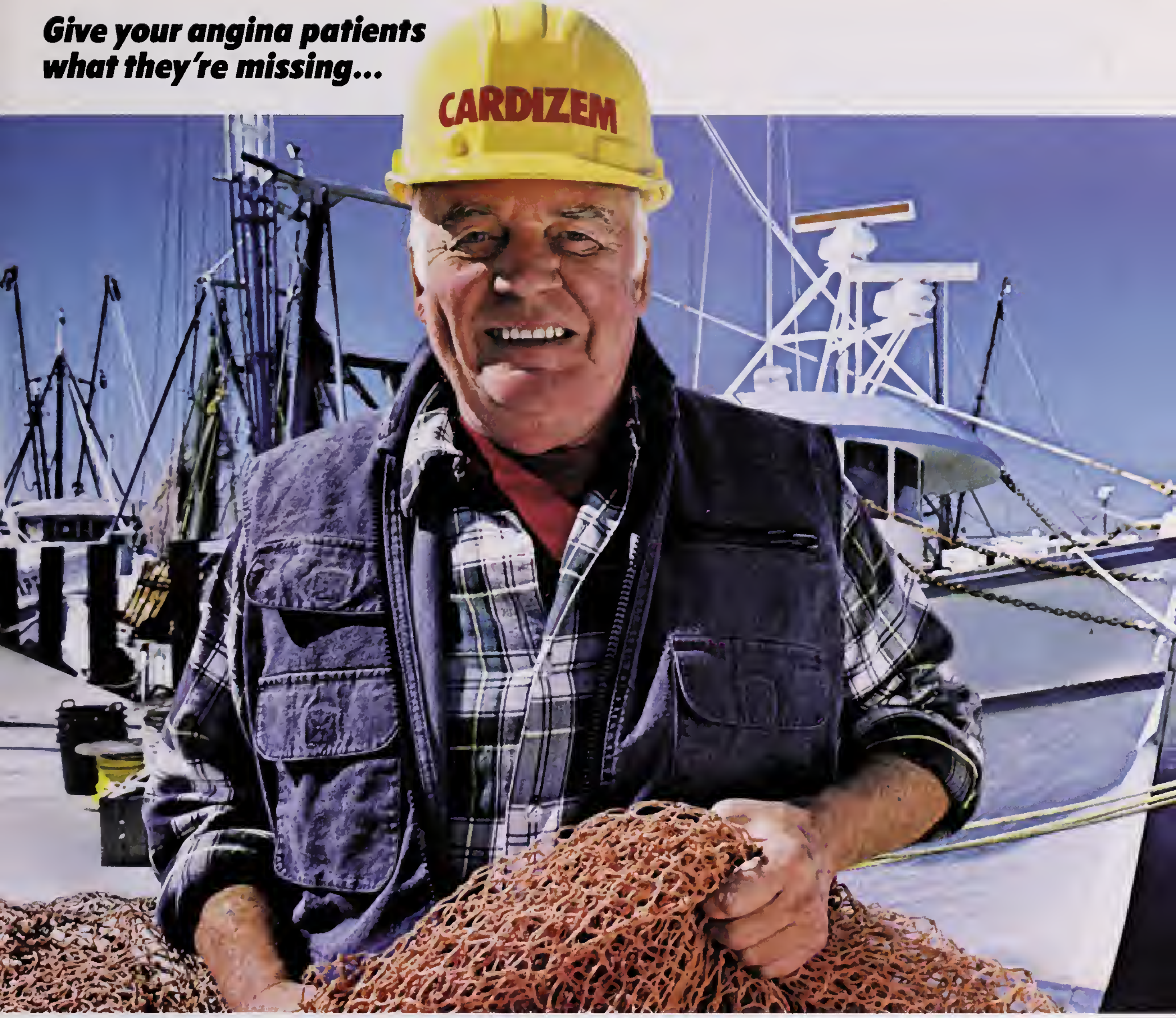

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WARNINGS

1. **Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).

   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury.** In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes, however, these changes were reversible with continued dosing.

Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women, therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular	Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.
Nervous System:	Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.
Gastrointestinal:	Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.
Dermatologic:	Petechiae, pruritus, photosensitivity, urticaria.
Other:	Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

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the initial judgment that the surgeon should be permitted to operate, a closer look at the analogies casts some doubt on that. Suppose that an AIDS patient is denied a dental appointment when he informs his family dentist that he has AIDS. Most people would think that the patient acted responsibly in informing the dentist of his disease, and that the dentist was prudent to deny the appointment. Yet, while normal dentistry often involves a fair amount of bleeding, it is fairly unlikely that a dentist will cut himself in the course of his work. Thus, the dentist's risk is probably no greater than the risk the surgeon's patient would face. If that is true, a person thinking that the dentist was justified in refusing his patient would have to think that the surgeon was *not* justified in proceeding to operate. There is another complicating factor. If the surgeon did operate he presumably would not inform his patient that he was infected with the AIDS virus, which makes the case quite different from our common acceptance of risk on the highway. Few of us are unaware of the risk of freeway travel. Unlike the surgical patient, we accept the risk knowingly. The apparent conclusion is that the surgeon should at least inform the patient of his condition and let the patient decide whether to take the risk, however slight.

". . . our moral sensitivities, our consciences, are formed by patterns of judgments about particular cases, and not by general moral principles."

This line of reasoning may be inconclusive, but it nicely illustrates the role of cases in our consideration of moral questions. The responsibility of the surgeon to his patient is assessed by comparing the patient's likely objections with those that might be offered and answered in comparable circumstances. General principles play little role in this line of reasoning. What stands in their place are relatively specific principles that are abstracted from judgments about particular cases and employed in the reasoning over those cases. The cases are not unique but are different from one another in ethically relevant ways. Their similarity to the problematic case and differences from one another allow them to serve as moral guides. Examples like this should remind us of the extent to which our moral sensitivities, our consciences, are formed by patterns of judgments about particular cases, and not by general moral principles.

Public Health and Individual Liberties

How do these ideas apply to the ethical questions raised by AIDS? The most critical of those questions involve potential conflicts between efforts to control lethal disease and the civil liberties of populations at risk. I have argued that in such a case the presumption in favor of the civil liberties of the minority can be rebutted, but only if it is reasonable to expect that group to accept the threat to its liberties entailed by the efforts to control the disease. The issue is clouded by the fact that both the effectiveness of the efforts to control the disease and the threat to civil liberties are somewhat speculative. In the case of contact notification, for example, it is difficult to estimate the likely effectiveness because there is no known treatment for contacts infected and little evidence that uninfected contacts informed of their jeopardy will change their practices if they have not already done so. Contact tracing would involve establishment of a public record, but further threats to civil liberties depend on somewhat speculative estimates of what might happen under various circumstances. Thus, these cases present no clear conflict between effective efforts to control a lethal disease and civil liberties. If contact tracing were known to be effective and could not be privately carried out, it would be hard to believe that it would meet serious opposition from gays. But according to the ethical approach I have outlined, it would be necessary to seek out and weigh their objections.

Requiring that policies and practices be justifiable to those affected by them creates a presumption in favor of equal treatment that can be overridden but only in extreme circumstances. For example, it is unlikely that an informed group of people would find differential restrictions on their civil liberties justifiable if the restrictions were proposed to economically benefit the majority of the population. But most moral conflicts over public policies are not that clear. It is natural to want a more explicit specification of priorities, a definition of extreme circumstances, and a specification of the liberties that can be restricted under those circumstances. Many philosophers have tried to do that, and their lines of thought are often illuminating, but the resulting principles tend to be too general to effectively decide questions of the sort I have been considering. In the most convincing moral argumentation, as I have tried to suggest, the consideration of patterns of similar and contrasting cases stands in the place where we might have hoped for general specifications of priorities. That is not always decisive, and it can be turned to many purposes, but I believe that it is the most critical form or moral argumentation.

Practical Implications

The approach I have suggested has two practical implications. The first concerns ethical review committees charged to review policies concerning AIDS. If, in the consideration of ethical questions, the primary focus is on the objections of people likely to be affected by a practice or a policy, it is particularly important that those people be represented in more than a token way on review committees. There is a natural institutional tendency to prefer experts of one sort or another, and in the heady atmosphere of the new and developing discipline of biomedical ethics, there may be a tendency to think that practitioners of that discipline should play the major role. That seems doubtful. Philosophers and others schooled in biomedical ethics certainly have their place, but if the line of thought I have offered here is correct, the crucial participants must be members of affected groups.

The other implication falls in line. If cases play the role I have suggested, it is important in the course of consideration to let imaginations work. Grim facts have a tendency to restrict attention to the case at hand. But if moral insight depends on locating questions in an array of cases, it is essential that we have in mind cases that will bring out the crucial considerations in the situations we confront. Casuistry has a bad name, but practiced with responsible concern it can cast some light on hard questions.

In conclusion, I want to say a word about the social conditions of responsible ethical criticism. I have tried to describe a way of approaching the difficult ethical questions we face in confronting AIDS. If we are to reasonably and responsibly address those questions as the AIDS epidemic progresses, we must maintain an atmosphere of mutual consideration and common concern. The evenhanded consideration of ethical questions is fragile at best and not likely to survive in an atmosphere of fear, hostility, and mutual suspicion, particularly if it requires listening to the concerns of people at risk. The inner noise is likely to drown out their voices. For that reason, anyone concerned that these issues be fairly and humanely treated should do what he can to address the fears and suspicions and to try to make a place for mutual understanding and respect.

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contributions

The predicted disease impact of acquired immunodeficiency syndrome in Minnesota:
five-year projection models for a low-incidence state*

James M. Shultz, M.S.†, Richard N. Danila, M.P.H.†, Kristine L. MacDonald, M.D.†, Michael T. Osterholm, Ph.D., M.P.H.†

As of January 1, 1987, 155 Minnesota resident cases of acquired immunodeficiency syndrome (AIDS) had been reported (37 cases per 1 million residents). Minnesota ranks 25th among states and territories in incidence rate, and has a 3- to 14-fold lower incidence than the five states (New York, California, Florida, New Jersey, and Texas) that currently account for 72% of cases nationally. To formulate public health prevention strategies and health care service policies for human immunodeficiency virus (HIV) infection, the Minnesota Department of Health (MDH) has developed five-year projection models for future numbers of AIDS cases in Minnesota. Based on three case-number doubling models presented, we predict that between 1986 and 1990, 1,246 to 1,860 new cases of AIDS will occur with 840 to 1,209 deaths. From 23,510 to 33,847 person-years of potential life lost (YPLL) prior to age 65 will be attributable to AIDS. By 1990, YPLL for AIDS will exceed all other causes of YPLL for single, never-married men, ages 25 to 44 in Minnesota. Estimates of cumulative direct health care costs for the five-year period range from $30 million to $43 million (1984 dollars). Estimates of indirect morbidity costs, a disability measure, range from $18 million to $27 million, and indirect mortality cost estimates add another $480 million to $691 million. Our projection models indicate that morbidity and mortality from AIDS will lead to substantial health care burdens and economic costs for Minnesota in the very near future. The projection models presented here may be applicable to similar calculations for other low-incidence states. Thus, the medical and public health communities in such states need to begin now to develop programs and policies to accommodate this disease impact. In addition, for low-incidence states, future economic burdens need to be considered when allocating current limited funds for disease prevention efforts.

As of January 1, 1987, more than 29,000 cases of acquired immunodeficiency syndrome (AIDS) had been reported to the Atlanta-based Centers for Disease Control (CDC) and over 16,000 case-fatalities (56%) had been confirmed.[1] The number of AIDS cases that will occur in this country through 1991 has been estimated to exceed 270,000 with 179,000 deaths (66%).[2] In addition, experts predict that increasing numbers of cases will be reported from currently low-incidence areas of the United States, with progressively diminishing proportions of new cases identified from currently high-incidence areas.[2]

Minnesota is currently a "low-incidence" state for AIDS. As of January 1, 1987, 155 Minnesota resident cases of AIDS had been reported with a cumulative incidence rate of 37 cases per 1 million population. Minnesota ranks 23rd among states and territories in numbers of reported cases and 25th in incidence rate. Our incidence rate is 3- to 14-fold lower than that for the five states (New York, California, Florida, New Jersey, and Texas) that currently account for 72% of cases nationally. Ninety-one percent (141) of cases have occurred in the seven counties comprising the Twin Cities SMSA.

The primary risk group for infection with human immunodeficiency virus (HIV) in Minnesota is homosexual and bisexual men (Table 1). We estimate that at least 100,000 men in our state are homosexual or bisexual and are at risk for acquiring HIV infection (using either the proxy measure of 104,000 single, never-married males, ages 25 to 44 or the conservative Kinsey report figure of 5% of the Minnesota male population of 2.1 million). In addition, we estimate that 1,000 to 1,500 addicted intravenous drug users reside in the state (C. Falkowski, personal communication, April 1986). Finally, based on HIV antibody seroprevalence surveys among male homosexuals and the rates of HIV antibody seropositivity among persons tested at MDH-sponsored counseling and testing sites, we estimate that at least 20,000 Minnesota residents are currently infected with HIV.

To provide a data base for future policy decisions regarding prioritization of prevention efforts, use of medical resources, payment for medical care of AIDS patients, and development of funding sources for AIDS-related public health activities, we have developed projection models to provide five-year estimates of the health and economic impact of AIDS on the residents of Minnesota. To estimate the

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TABLE 1

Acquired immunodeficiency syndrome (AIDS) cases by risk group: Minnesota* and United States**

Risk Group	Minnesota		United States	
	Cases	Percent	Cases	Percent
Homosexual/bisexual	132	85%	18,750	66%
Intravenous drug	4	3	4,846	17
Homosexual/bisexual and intravenous drug	10	7	2,230	8
Hemophilia	3	2	246	1
Transfusion	1	1	524	2
Heterosexual contact	3	2	1,524	4
None of the above	2	1	905	3
TOTAL	155	100	28,593	100

*Jan. 1, 1987

**Dec. 29, 1986, (excludes 410 pediatric cases)

disease impact, we used epidemiologic models to predict future numbers of AIDS cases through 1990 and used health economics methods to predict the costs associated with these expected AIDS cases. Based on the latency period from HIV infection to the onset of AIDS as defined by the CDC, the models presented in this report provide estimates of the numbers of AIDS cases that will occur predominantly among persons who are currently infected.[3] We intentionally did not estimate the disease impact of non-AIDS HIV-associated disease because of lack of data, but we anticipate substantial additional costs beyond those estimated for AIDS. The results presented here will likely be applicable to other low-incidence states and emphasize the magnitude of the AIDS problem in this country.

Methods

Definitions: The following definitions describe measures used in the prediction models.

- **New cases** - Reported (predicted) AIDS cases meeting the CDC surveillance case definition by month of diagnosis.
- **Cumulative cases** - Running total of AIDS cases.
- **Deaths** - Reported (predicted) case-fatalities among reported AIDS cases.
- **Cumulative deaths** - Running total of deaths.
- **Live cases** - Cumulative cases minus the cumulative deaths.
- **Years of potential life lost (YPLL)** - Two variations of the YPLL measure are used to quantify the premature mortality associated with AIDS; first, YPLL prior to age 65 (YPLL-65), which measures the loss of income-earning years due to early death from AIDS, and second, YPLL relative to years of life remaining at age of death (YPLL-all), which measures the magnitude of foreshortened life expectancy.
- **Direct health care costs** - Direct health care costs estimated in this study are personal health expenditures for hospital care, physicians' services, medications, nursing home care, and other professional services. Additional "non-personal" direct costs for public health activities and research were not projected.
- **Indirect morbidity costs** - The costs of lost income and productivity for persons who are disabled by AIDS illness. Productivity losses are measured as wages, salaries, and supplements from days lost from work among currently employed persons, long-term disability days, and hospitalization days for AIDS patients.
- **Indirect mortality costs** - The estimated costs of lost income and productivity resulting from AIDS-associated premature death. Discounting was used to estimate this forfeiture of expected future earnings in present-valued dollars.
- **Estimation models** - The MDH currently employs a combination of active and passive surveillance for reporting of all HIV infections. The mean lag time from diagnosis to report is less than one month. Recent review of all statewide death certificates coupled with interviews with all physicians who have diagnosed or reported cases of HIV infection uncovered no instances of unreported AIDS cases.

The cumulative number of Minnesota resident AIDS cases doubled from 30 cases to 60 cases between April and October 1985, a seven-month doubling period that directly preceded the prediction period. Future case-number doubling cycles were modeled for 1986 through 1990. A power of two equation was used to simulate doubling for all models: Cumulative cases ($.9375 \text{ X } 2^{exp} + 10$). To obtain the original base for doubling (60 cases), the first exponent inserted was 6 ($2^6 = 64$; $.9375 \text{ X } 2^6 = 60$). Actual cases at the beginning of the prediction period (70 cases as of January 1, 1986) were obtained by adding 10 ($.9375 \text{ X } 2^6 + 10 = 70$); estimates of cumulative cases included these pre-existing cases. Each doubling of cases is represented by a unit increase in the power of the exponent. Fractional exponents (equal to 1/number of months in current doubling cycle) were added to the exponent to produce monthly estimates of cumulative cases.

The first model assumes a constant doubling cycle of 12 months, comparable to the length of the national doubling cycle at the time the models were developed. The other two models incorporated a sequence of expanding doubling cycles based on observation of progressively increasing case-doubling cycles nationally (Table 2).[4]

Calculation procedures: Cumulative cases of AIDS in Minnesota are generated directly from the model equations. Using the predictive equations described above, the monthly cumulative cases were calculated for each of the 60 months

TABLE 2

Doubling cycles for Minnesota models for AIDS cases

Doubling Cycle	Cases/ Cycle	Months Required for Doubling of Cases		
		Model A	Model B	Model C
Cycle 1	60	12	8	10
Cycle 2	120	12	10	12
Cycle 3	240	12	12	14
Cycle 4	480	12	14	16
Cycle 5	960	12	16	8*
Total months, 1986-1990		60	60	60

*8 months of an 18-month cycle will be completed by 12/31/90

from January 1986, through December 1990. The fractional increment added to the exponent for each month corresponds to the length of the cycle in months. For 8, 10, 12, 14, 16, and 18 month cycles, the increments are .1250, .1000, .0833, .0714, .0625, and .0556, respectively. Monthly new cases of AIDS were calculated as the difference between cumulative cases for successive months.

Calculation of AIDS deaths by month relied on previous estimation of new cases of AIDS per month, distribution of cases into disease groups, and application of differential survival rates by disease group. We used the U.S. distribution of cases by diagnosis for over 16,000 cases for our analyses because it was regarded as more stable and representative than the data available for 70 Minnesota cases at the time the models were constructed. Accordingly, estimated monthly new cases in Minnesota were subdivided into disease groups according to the percentage distribution of national AIDS cases as of January 6, 1986 (18.52% Kaposi's sarcoma [KS], 57,40% *Pneumocystis carinii* pneumonia [PCP], 5.65% KS plus PCP, and 18.43% No KS/No PCP).

Survival rates by disease group were used to calculate monthly mortality from KS, PCP, KS plus PCP, and No KS/No PCP based on detailed California data for over 3,000 AIDS cases.[5] Cumulative deaths were obtained by sequential summation of monthly AIDS deaths. Live cases by month by disease group were calculated as the difference between monthly cumulative cases and monthly cumulative deaths.

YPLL-65 were computed as the sum of the differences between age 65 and age at death. Predicted Minnesota AIDS deaths were subdivided by age (in five-year age intervals) and gender (92.0% males, 8.0% females) in proportion to the distribution of 8,220 U.S. case-fatalities reported to the CDC by January 6, 1986. For YPLL-all, U.S. Life Tables were used to provide expected years of life remaining at age of death by birth cohort and gender; YPLL-all were computed as the sum of the differences between life expectancy and age at death.[6]

Direct health care costs for AIDS are based on an estimate of $33,500 for *annual* costs per cases obtained from a recent study performed for the CDC (A. Scitovsky, personal communication, June 1986). The $33,500 annual cost figure was selected as most applicable to Minnesota after review of available data on AIDS hospitalization costs in Minnesota and review of previous *per-case* direct cost estimates ranging from about $30,000 at San Francisco General Hospital,[7] to $91,000 in billed commercial costs ($59,000 in paid Medicaid costs) for California AIDS patients with Medi-Cal claims,[5] to $147,000 for a national estimate of per-case direct costs for the first 10,000 patients.[8] Estimated monthly direct health care costs were calculated as the products of the numbers of Minnesota live cases times the average monthly costs summed across disease groups.

Estimated AIDS live cases per month and estimated average monthly income for the age and gender distribution of AIDS cases were used to estimate indirect morbidity costs. Entered into the calculation were Minnesota-specific male and female median full-time income data by age, labor force participation rates (full-time and part-time), population estimates by age group, the age and gender distribution of current U.S. live cases, and an estimate of percentage disability from AIDS (86%).[9]

The economic analog of the YPLL measure, indirect mortality costs, incorporates both the number of AIDS deaths and age at death. National estimates of the present values of future earnings by gender and five-year age group for 1980, using a discount rate of 4% (routinely used in national costs of illness calculations, including costs specific to AIDS), were inserted into the calculations.[10] Future Minnesota AIDS deaths were assumed to follow the age and gender distribution of the U.S. AIDS deaths. Indirect mortality costs were estimated as the sum of the products of numbers of deaths times the present value of future earnings for each age group. Final values were inflated to 1984 dollars.

Results

Our models predict that 1,246 to 1,860 new cases of AIDS will be diagnosed and reported in Minnesota from 1986 through 1990 (Table 3). From 840 to 1,209 deaths will occur among these cases (including deaths among the cases diagnosed before 1986 and known to be living at year-end 1985). The prevalence burden of AIDS cases will range from 443 to 805 live cases of AIDS under medical treatment at year-end 1990.

Estimated YPLL-65 will range from 23,510 to 33,847 person-years

TABLE 3

Summary of basic prediction measures for AIDS in Minnesota

Year	Cumulative Cases*	New Cases	Deaths	Cumulative Deaths**	Live Cases
			Model A		
1986	130	60	42	76	54
1987	250	120	72	148	102
1988	490	240	140	288	202
1989	970	480	279	567	403
1990	1,930	960	557	1,125	805
			Model B		
1986	168	98	54	88	80
1987	349	181	110	198	151
1988	656	307	196	394	262
1989	1,152	496	328	722	429
1990	1,930	778	521	1,243	687
			Model C		
1986	145	75	47	81	64
1987	275	130	83	164	111
1988	490	215	139	303	187
1989	817	327	223	526	291
1990	1,316	499	348	874	443

*Cumulative cases include 70 cases reported by 12/31/85

**Cumulative deaths include 34 deaths reported by 12/31/85

TABLE 4

Predicted disease impact of AIDS in Minnesota: Epidemiologic measures

Measure	Model A	Model B	Model C
	1986 Estimates		
New AIDS cases	60	98	75
Deaths	42	54	47
Live cases (year-end)	54	80	64
YPLL-65 (person-years)	1,170	1,519	1,308
YPLL-all (person-years)	1,531	1,987	1,712
	1986-1990 Cumulative Estimates		
New AIDS cases	1,860	1,860	1,246
Deaths	1,090	1,209	840
Live cases (year-end, 1990)	805	687	443
YPLL-65 (person-years)	30,530	33,847	23,510
YPLL-all (person-years)	39,956	44,295	30,767

(Table 4). Estimated YPLL-all will range from 30,767 to 44,295 person-years. For all men ages 25 to 44, the range of estimates for AIDS-associated YPLL-65 and YPLL-all progressively increases and ultimately exceeds the all-causes YPLL for this group in years before AIDS entered the community (Figure).

For direct health care costs, using annual medical costs per case of $33,500, Minnesota will experience between $1.4 million and $1.9 million in health care costs for AIDS patients in 1986; and between $29.8 million and $43.0 million for the period 1986 through 1990. Estimates of indirect morbidity costs for 1986 range from $0.9 million to $1.2 million in lost income and productivity. For the five-year interval 1986 through 1990, disability cost estimates range from $18.4 million to $26.5 million.

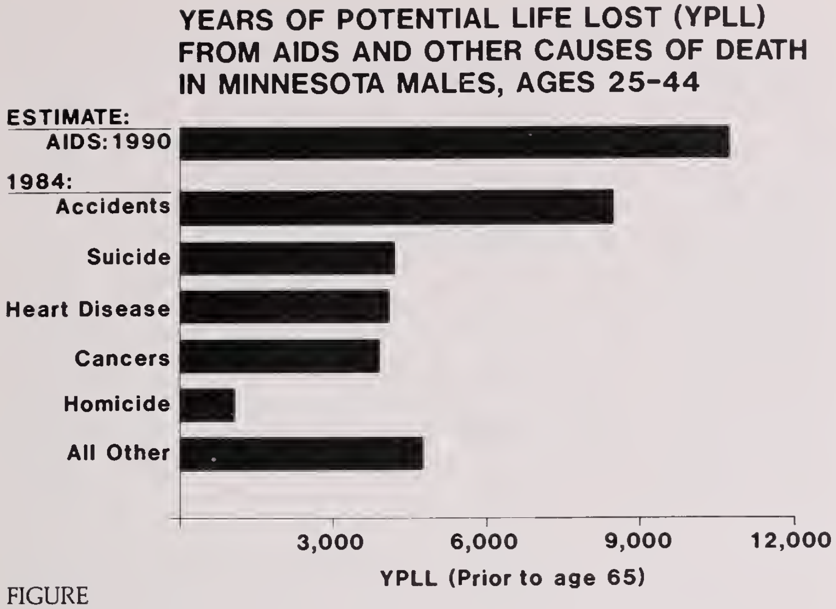
Indirect mortality costs are the greatest contributor to AIDS-associated costs. Estimates of this measure range from $23.9 million to $31.0 million for 1986. For the five-year interval, the estimated indirect mortality costs range from $480.3 million to $691.5 million.

Summing the three cost measures, the estimates for 1986 range from $26.2 million to $34.1 million in AIDS-associated costs. For the five-year interval, 1986 through 1990, estimates range from $528.5 million to $761.1 million (Table 5).

Discussion

Modeling trends: We believe that the data presented from our models provide a realistic but discouraging projection for the impact of AIDS in a state currently classified as "low-incidence" for AIDS. Two diametral methods may be applicable for modeling trends in AIDS cases. First, models may be produced by starting from the numbers of persons at risk for HIV infection and telescoping downward to define the numbers of HIV-infected persons, the probable numbers of AIDS-related complex (ARC) cases, and finally, the probable numbers of AIDS cases. However, this approach is seriously limited by the unavailability of reliable information on numbers of high-risk persons, epidemiology of risk-related behaviors among risk group members, infection rates in relation to risk behaviors, seroprevalence rates by risk group, and projections of the proportions of HIV-infected persons who will develop AIDS. The alternative approach selected for the Minnesota calculations, is to begin with the baseline number of confirmed AIDS cases locally over time. The models used are mathematically simple and preclude the need for precise estimation of the size of the risk groups.

In assessing the efficacy of our models in predicting future numbers of AIDS cases in Minnesota, several assumptions and limitations of the modeling were considered. First, we assumed that a high-risk population exists of sufficient numbers to sustain the predicted numbers of cases and that a sufficient number of those persons are infected with HIV to generate the predicted numbers of AIDS cases. Estimates of numbers of homosexual and bisexual men for Minnesota and current HIV seroprevalence data support this assumption.



FIGURE

Second, due to the long incubation period from initial HIV infection to onset of AIDS symptoms, most cases diagnosed during 1986 through 1990 will be from the pool of persons currently infected with HIV. Also, no vaccine will be available before the end of 1988. Based on the incubation period, a vaccine available after that date would not substantially alter the numbers of incident cases developing before 1991.

Third, no treatment for AIDS patients will significantly alter the case-fatality rate or the life expectancy from diagnosis during the interval 1986 through 1990. Results of the recently conducted azidothymidine (AZT) clinical trial (M. Fischel, Interscience Conference on Antimicrobial Agents and Chemotherapy, New Orleans, LA, 1986) suggest the possibility of prolongation of patient survival at least in the short term. If AZT is widely used in Minnesota, such use may lead to an overestimate of mortality measures presented here (deaths, YPLL, indirect mortality costs). However, in the trial, no significant decrease in the incidence of opportunistic infections among AZT-treated patients was noted and 30% of the treatment patients required multiple transfusions for AZT-induced reversible anemia. Thus, direct health care costs and disability costs for patients receiving AZT may have been underestimated.

Fourth, the use of the U.S. distribution of AIDS cases by age, gender, and disease group was intentional. When the prediction models were developed, a baseline of 70 cases was not regarded as sufficiently stable or representative to provide parameters for estimation.

Fifth, the models assume a static distribution of cases into disease groups. National surveillance data suggest that the proportion of PCP cases is increasing with a corresponding decrease in cases presenting with KS. Therefore, this distribution may change over time, and we did not include this in our modeling.

Finally, the choice of the doubling periods is hypothetical; future Minnesota experience may not reproduce previous national experience because of differences in risk dynamics. Therefore, we chose multiple prediction models to provide a range of possible future scenarios. Model B is regarded as most realistic. Cases reported during 1986 have followed estimates predicted by this model.

The models presented here are based on the assumption that the future experience in Minnesota can be generally predicted from the experience of currently high-incidence locations. We believe this approach is supported by several points. First, it has been previously suggested that hepatitis B virus (HBV) transmission is similar to HIV transmission. Minnesota hepatitis B surveillance and selected ser-

TABLE 5

Predicted disease impact of AIDS in Minnesota: Health economics measures*

Measure	Model A	Model B	Model C
1986 Estimated AIDS Costs (in thousands)			
Direct health care costs**	$ 1,446	$ 1,919	$ 1,631
Indirect morbidity costs	891	1,183	1,005
Subtotal:	$ 2,337	$ 3,102	$ 2,636
Indirect mortality costs	23,900	31,000	26,700
Total costs:	$26,237	$34,102	$29,336
1986-1990 Estimated Cumulative AIDS Costs (in thousands)			
Direct health care costs**	$38,963	$43,048	$29,816
Indirect morbidity costs	24,015	26,533	18,377
Subtotal:	$62,978	$69,581	$48,193
Indirect mortality costs	623,700	691,500	480,300
Total costs:	$686,678	$761,081	$528,493

*All values in 1984 dollars

**Based on annual medical care costs per case of $33,500

FIGURE—Years of potential life lost (YPLL) from acquired immunodeficiency syndrome (AIDS) and other causes of death in Minnesota for single, never-married males, ages 25-44.

oprevalence data suggest that sexual practices among homosexual/bisexual men are similar in Minnesota to those documented in other areas of the country, including regions considered to be "high-incidence" areas for AIDS. Seroprevalence of hepatitis B markers among homosexual/bisexual men who attended sexually transmitted disease clinics in Minnesota (58%) is similar to that seen in San Francisco (61.5%) and New York (68.1%) (M.T. Osterholm, personal communication).[11,12] Also, a decline in incidence of acute HBV infection among Minnesota homosexual/bisexual men between 1980 and 1985 has not been noted through our active laboratory-based HBV surveillance system. Since HBV cases continue to occur among homosexual/bisexual men, these data suggest that sexual practices that may affect HIV transmission have not changed substantially over the past several years in Minnesota.

Second, Minnesota five-year estimates are based on the development of AIDS among currently HIV-infected persons. The CDC originally estimated that 5% to 20% of HIV-infected persons will develop AIDS within two to five years of initial infection[3] based on the results of several cohort studies.[13,15] Goedert and colleagues summarized three-year incidence of AIDS among five cohorts of HIV-infected persons ranging from 8% to 34%.[16] The recent Coolfont Report indicated a five-year incidence of AIDS among HIV-infected persons at 20% to 30%.[2] Assuming that this range of incidence rates is applicable to the Minnesota experience, the estimated 20,000 currently HIV-infected Minnesota residents provide sufficient numbers to generate predicted future AIDS cases. Thus, case-incidence modeling for the interval of 1986 through 1990, a time period for which future cases have largely been determined by existing HIV infection in the population, will be minimally affected by current risk reduction programs.

Cost predictions: When examining predictions of the economic costs of AIDS to the state of Minnesota as determined by the models, several points deserve mention. First, all assumptions noted in the discussion of estimation models are applicable to the economic estimates that are derived from the models. Second, the methods of computing economic costs of illness possess intrinsic limitations, and the compounding of error in economic calculations with error in the epidemiologic modeling limits the precision of the AIDS cost estimates.[17,20] Third, in calculating direct costs, available national estimates of per-case costs ranged from $30,000 to $147,000.[7,8] Differences in methodology, case-mix, risk groups, treatment protocol, availability of non-hospital care facilities, and community-based voluntary support partially accounted for the wide disparity in estimates. For Minnesota, multiple initial calculations were performed using the low and high figures plus a mid-range estimate of $91,000.[5] Revised direct cost estimates presented here are based on an estimate of $33,500 in "annual medical care costs per case" developed in a subsequent consultant report to the CDC using assumptions of 1.7 hospital admissions per year with an average length of stay of 20 days billed at $900 per day for inpatient costs plus $3,000 in outpatient costs (A. Scitovsky, personal communication, June 1986). The direct cost figure estimated at $1.9 million in 1986 and at $18.6 million for 1990 represents only 0.03% and 0.30% of total state personal health expenditures, respectively. Nevertheless, these are new costs for a new disease—an overlay to the costs of prevalent chronic diseases. Furthermore, the expected costs in 1990 are not regarded as peak costs of AIDS, which will continue to increase beyond the end of the prediction period. Fourth, in calculating indirect morbidity costs, the estimation of percent disability during AIDS illness was derived from the single estimate appearing in the literature.[9] More accurate assessment of the degree and duration of disability is needed for upgrading future estimates.

The economic cost estimates are conservative because they are limited to AIDS cases. HIV infection may lead to a clinical spectrum of illness including various levels of immunodeficiency and neurologic impairment.[21] Cost estimates included here are restricted to CDC-defined AIDS cases and do not include the costs for treatment of HIV-antibody seropositive persons with or without ARC symptoms. No costs for the treatment of persons infected with HIV who exhibit neurologic symptoms are included unless the patient concurrently has a diagnosis of AIDS. The costs of non-AIDS HIV-associated diseases will likely add significantly to the economic burden. Furthermore, the costs for Minnesota AIDS public health activities are substantial but not predictable for five years.

Summary

It is apparent that AIDS will have a dramatic nationwide impact on the health care delivery system and health care financing by 1990. Therefore, it is critical that the public health and medical communities here and in other low-incidence areas begin now to develop programs aimed at dealing with the AIDS epidemic. Other low-incidence states may be able to use the disease and economic impact models we have developed so that similar predictions can be made for other areas of the country.

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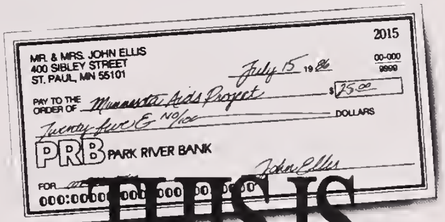

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Percutaneous transluminal coronary angioplasty: An evaluation of sustained clinical efficacy

Kevin C. Cwayna, B.A., Fredarick L. Gobel, M.D.**, Robert A. Van Tassel, M.D.**, Marc R. Pritzker, M.D.**, Richard R. Nelson, M.D.**, Charles R. Jorgensen, M.D.***

The sustained clinical efficacy of percutaneous transluminal coronary angioplasty (PTCA) was evaluated in 164 of 176 patients (93%) undergoing an initially successful PTCA in the 52 months from November 1979 through February 1984. A survey and medical records review were used to determine the Canadian Functional Class of each initially successful PTCA patient at each month following PTCA. Initial success was defined as a decrease in stenosis to 50% or less obstruction of the luminal diameter apparent in the immediate post-PTCA angiogram accompanied by relief of angina pectoris, and, without complications (myocardial infarction, death) or further operations (coronary artery bypass surgery) during the initial hospitalization. Results of this study indicate that recurrent angina developed in 25% of patients within six months following the initially successful PTCA. Generally, those patients sustaining an asymptomatic or mildly symptomatic status (Canadian Functional Class I) throughout the first six months following the procedure remained asymptomatic or mildly symptomatic for the subsequent four years. Eleven patients had repeat PTCA during this period and ten patients had more than one vessel dilated. Evaluation of the repeat PTCA procedures indicated that the sustained clinical efficacy of repeat PTCA closely resembles the sustained clinical efficacy of the successful initial PTCAs.

Percutaneous transluminal coronary angioplasty (PTCA) has proven to be a useful alternative to coronary artery bypass surgery in selected patients for the relief of disabling angina pectoris. In some patients, however, angina pectoris returns within a short period of time. In most instances this is due to recurrent stenosis at the site of the original dilation. The rate of restenosis, and therefore the return of angina pectoris, determines the sustained efficacy of PTCA and its usefulness as a therapeutic alternative.

Because PTCA was not routinely performed before 1980, studies evaluating sustained clinical efficacy are few. This study was designed to evaluate the rate of return of angina pectoris in patients successfully treated with PTCA and to evaluate the outcome of those patients with recurrent angina or other complications of myocardial ischemia following PTCA.

Methods

During the 52 months from November 1979 through February 1984, 260 PTCA procedures were performed at Abbott Northwestern Hospital by physicians of the Minneapolis Heart Institute. Of these, 176 procedures in 176 patients were successful during this period (68%). A successful PTCA was judged to have occurred when symptoms were relieved and the degree of residual obstruction was 50% or less of the luminal diameter. Of the 176 patients who underwent initially successful PTCA procedures, 164 completed a survey in August or September of 1984 and/or had returned for progress examinations since their PTCA. Thus, 93% of all initially successful PTCA patients were evaluated for sustained clinical efficacy and serve as the patient material for this study.

Excluded from this study were those patients who, within the initial hospitalization, suffered recurrent angina, required emergency surgery, or developed myocardial infarction. Included were all patients with initially successful PTCA procedures enabling them to leave the hospital without symptoms or complications.

Patients who had recurrent angina pectoris after leaving the hospital and who subsequently had a second or third PTCA were also included in this study. Eleven patients underwent a second successful PTCA with one patient requiring a third PTCA, which was successful. Repeat procedures were evaluated for sustained clinical benefits in the same manner as initial PTCA procedures; thus a total of 176 initially successful PTCA procedures on 164 patients were evaluated for sustained clinical efficacy.

Clinical efficacy was judged from patients' medical records and a survey questionnaire completed either by telephone (87% of patients) or by mail (6% of patients). Satisfactory information was obtained from the physicians of the remaining 7%. In those patients who had recurring chest pain, an attempt was made to separate pain typical of angina pectoris from pain atypical of angina pectoris. A point score system as devised by Paquay et al. was used.[1] The Canadian

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From the Minneapolis Heart Institute, Minneapolis, Minnesota.
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TABLE

Canadian Cardiovascular Society Functional Classification*

Class I — Ordinary physical activity does not cause angina. Angina with strenuous activity.
Class II — Slight limitation of ordinary activity, such as angina with climbing stairs rapidly or walking rapidly uphill.
Class III — Marked limitation of ordinary physical activity, such as angina with walking one to two level blocks.
Class IV — Inability to carry on any physical activity without discomfort—anginal syndrome may be present at rest.

*adapted from reference 2

Functional Class (Table)[2] for each patient was determined. The symptomatic status of each patient was determined monthly following PTCA. Patients were symptomatically classified as: 1) free of chest pain; 2) mildly symptomatic, with chest pain typical of angina of a Canadian Functional Class I severity; 3) mildly symptomatic, with chest pains atypical of angina, with only mild restriction in functional capacity as in Canadian Functional Class I; or 4) deteriorated, with angina of a Canadian Functional Class II-IV severity, and/or further complications (MI or death), or further procedures (repeat PTCA, coronary artery bypass surgery). If a patient with an initially successful PTCA became symptomatic subsequent to the first hospitalization and required a second PTCA which then left him asymptomatic, he was included as a new patient procedure and his symptomatic status judged accordingly after the second PTCA. One patient had three PTCAs and was included as three patient procedures. In total, the study followed 176 patient procedures from the initial 164 patients available for evaluation. The subject pool for each month following PTCA decreased after six months as the maximum time period for follow-up varied from six months to four years. The mean follow-up period was 21.5 ± 13.0 months.

Ten patients had dilation of more than one vessel. In nine cases two vessels were dilated and in one case three vessels were dilated. The remaining 154 patients had single vessel PTCA.

Results

During the four years of clinical follow-up two patients with initially successful PTCA died. One death was due to cancer. The other patient died suddenly and unexpectedly while unobserved. Both deaths occurred after more than four months following the initial PTCA. Thus, during the four-year follow-up the incidence of mortality was 0.5%/year in patients with an initially successful PTCA.

Myocardial infarction was recognized in five additional patients during this four-year period.

Clinical deterioration to Canadian Functional Class II-IV occurred in 46 patients (28%) during this four-year interval. Fourteen of these patients returned for a second PTCA and one patient for a third PTCA. Eleven of the 14 return PTCAs were successful.

Seventy-nine patients remained asymptomatic throughout the entire follow-up interval; 39 patients developed mild angina pectoris (21 patients) or mild chest pain that was atypical of angina (18 patients).

Among the 164 patients the left anterior descending coronary artery was the most common vessel dilated. Successful PTCA was achieved in the left anterior descending coronary artery in 100 patients (65%), in the right coronary artery in 45 patients (29%), in the left circumflex coronary artery in six patients (4%), and in coronary artery bypass grafts in three patients (2%). In the ten patients who had successful dilations in more than one vessel the following combinations occurred: right coronary artery and left anterior descending in seven patients, circumflex and left anterior descending in one patient, left anterior descending and proximal coronary artery bypass graft in one patient, left anterior descending, right coronary artery and circumflex in one patient.

Results of evaluation of the 164 initial PTCA procedures in 164 patients indicate that symptomatic relief is adequately maintained in approximately 64% of patients at four years after the procedure (Figure 1). When symptomatic deterioration did occur, it was most likely to occur in the first six months following PTCA. Two-thirds (67%) of the symptomatic deterioration occurring within four years following PTCA occurred within the first six months. Yet, of the deterioration occurring within the first six months, over 81% occurred within the first three months. So while the first six months appears to be a critical time period for the recurrence of angina pectoris, the first three months are the most important. The return of angina pectoris at yearly intervals thereafter follows a slower progression. After one year, 73% of patients with a successful initial procedure maintained a pain-free or mildly symptomatic status, with 69% maintaining a similar status at two years and 64% at four years after PTCA. The rate of the return of symptoms after the first year is 3% per year.

The addition of repeat procedures to the evaluation did not influence the apparent efficacy of PTCA (Figure 2). The four-year efficacy of 176 procedures in 164 patients was 64%, and there was a similar tendency of angina recurrence to occur within the first six months. Sixty-nine percent of the symptomatic deterioration occurring within four years following PTCA occurred within the first six

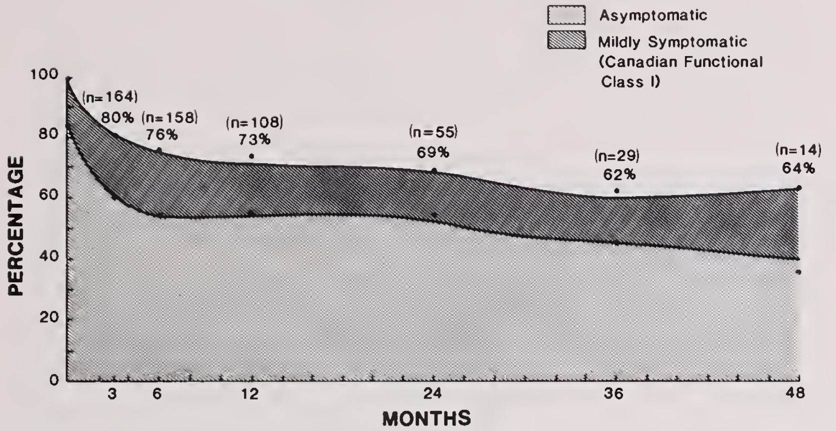

FIGURE 1—Time course of return of symptoms following initial successful PTCA in 164 patients.

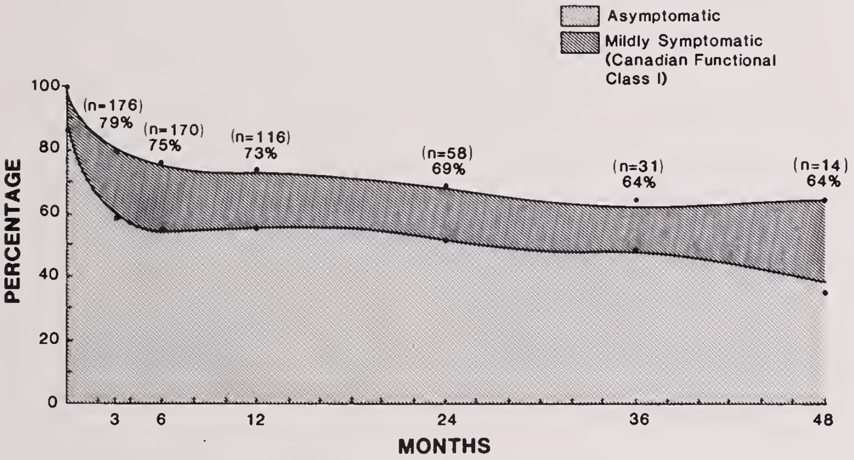

FIGURE 2—Time course of return of symptoms following successful PTCA in 176 procedures in 164 patients.

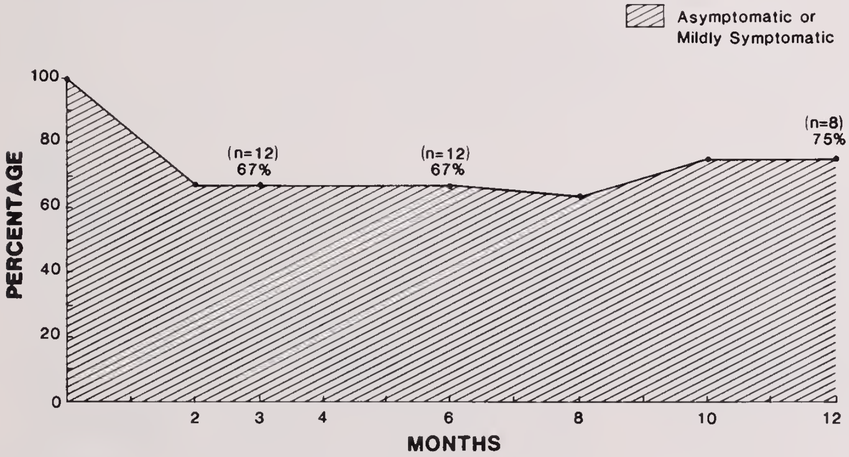

FIGURE 3—Time course of return of symptoms in those patients with repeat PTCA.

months, as compared with 67% (Figure 1). The first three months again appeared important, with 84% of the deterioration of the first six months occurring in the first three months. The rate of return of deterioration after the first year was 3% per year.

The evaluation of sustained efficacy of repeat PTCA suggests that repeat PTCA holds similar efficacy to initial PTCA (Figure 3). At six months following repeat PTCA, 67% of patients remained asymptomatic or mildly symptomatic without further complications.

Discussion

Results of this study indicate that the return of symptoms following PTCA continues to be an important problem as 36% of patients with an initially successful PTCA have recurrent symptoms while 64% remain asymptomatic or only mildy symptomatic. Of those who become symptomatic following PTCA most do so within the first six months. In the vast majority of instances recurrent angina pectoris is due to restenosis at the site of the original dilation.[3,4] Results of this study are in agreement with other reports indicating a recurrence of symptoms of 40% to 45%.[3-5]

Although repeat arteriography was not performed in this study other studies have indicated that when symptoms recur, 56% to 92% of patients will have restenosis at the site of the original dilation.[3-5] Conversely, arteriographic evidence of restenosis has been found to occur in 24% to 47% of all patients.[3-10] Some of these patients (4% to 24%) with arteriographic restenosis remain asymptomatic.[3-5,8] It therefore appears that evaluating the rate of restenosis by the occurrence of symptoms might be an underestimate when compared with the rate of restenosis as judged by arteriography.[5,8] All studies suggest that restenosis is more likely within the first six months and reaches a plateau thereafter.[3,8,10-13] Results from this study suggest that the first three months following PTCA may be even more important.

PTCA can be repeated successfully in the majority of cases and was accomplished in 78% of instances in this study. The risk of complications at the second PTCA does not appear to be greater, and may be even less than the initial PTCA.[14] Thus repeat PTCA is a useful alternative for those patients with recurrent symptoms following an initial PTCA.

The mechanism of restenosis is not entirely understood. The correlation of restenosis with the classic risk factors of cigarette smoking, hyperlipidemia, and hypertension is variable and not strong.[6,15] It has been suggested that the residual stenosis after the initial PTCA correlates with recurrent stenosis and return of symptoms.[5,6] David has suggested that if the residual luminal diameter was obstructed by more than 50% following PTCA, restenosis was more likely to occur.[10] Restenosis appears more likely when PTCA is performed on coronary artery bypass grafts.[4]

It is customary practice to prescribe antiplatelet agents following PTCA.[16] However, no randomized studies are available to indicate that this is necessary. The logic of this choice is based upon studies revealing increased graft patency in coronary artery bypass grafts with the addition of antiplatelet agents[17-19] and by a beneficial effect of antiplatelet agents on some clinical syndromes associated with atherosclerosis.[20-22] Coumadin does not appear to be any more effective in preventing restenosis than antiplatelet agents.[23]

The mechanism of successful PTCA is not entirely understood and it likely varies from patient to patient. It has been demonstrated that in some instances there is disruption of the media and dilation of both the normal and abnormal arterial wall so that both the luminal and outside diameters of the vessel increase following PTCA.[24-27] In those cases it is possible that dilation may only stretch the normal wall adjacent to the atherosclerotic plaque and then, in some cases, elastic tissue may subsequently lead to a return to the original diameter and restenosis.[25-27]

Although PTCA has been and will continue to be compared to coronary artery bypass surgery, they are two entirely different procedures. Randomized studies comparing the two procedures are not available. PTCA can be accomplished with the same low initial and subsequent mortality as coronary artery bypass surgery[28] and with similar long-term efficacy. PTCA is associated with a much shorter hospitalization time (two to three days) and with little or no morbidity after leaving the hospital. Patients are able to return to work in two to three days after PTCA, whereas the wait is typically two to three months following coronary artery bypass surgery. The cost of a PTCA is also considerably less than coronary artery bypass surgery (total cost of PTCA is from one-third to one-half the cost of coronary artery bypass surgery).[13] On the other hand, PTCA is more frequently applied to patients with less extensive disease than coronary artery bypass surgery and commonly to patients with disease in a single vessel. In this study, 94% of the patients examined underwent balloon angioplasty of a single vessel. In contrast, during a similar time period, only 2.4% of patients had one vessel bypassed. Restenosis following an initial excellent PTCA continues to be one of the more discouraging attributes of the procedure.

Acknowledgments

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MAY 6 - WEDNESDAY

- All Day Education Courses on Quality of Care
- Luncheon Speaker
  Dennis S. O'Leary, **M.D**, Chicago
  Dr. O'Leary is President of the Joint Commission on Accreditation of Hospitals
- Evening Welcome Reception
- **NOTE**: The MMA Auxiliary Meets Concurrently - All Spouses are Invited

MAY 7 - THURSDAY

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- Recognition Luncheon
- Reference Committees
- President's Inaugural and Reception

MAY 8 - FRIDAY

- **SESSION II** - House of Delegates

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BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR.)*

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride. Inderal LA is available as 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of INDERAL has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosages greater than required for beta blockade, INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antimigraine effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.

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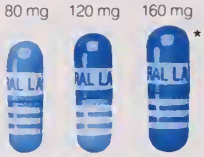

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension; it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS. CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible).

> IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. *General:* Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Pregnancy: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia; congestive heart failure; intensification of AV block; hypotension; paresthesia of hands; thrombocytopenic purpura; arterial insufficiency, usually of the Raynaud type.

Central Nervous System: lightheadedness; mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia; visual disturbances; hallucinations; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg for mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION — *Dosage must be individualized.* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS — *Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE — *Dosage must be individualized.* The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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(In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.)

Please see last page of this advertisement for brief summary of prescribing information.

ZOVIRAX® (acyclovir) CAPSULES

Help free your patients from recurrences.

Daily therapy

Coping with genital herpes is rarely easy. For some, the worst part is the pain and discomfort of frequent attacks — month after month, year after year. For others, the emotional burden presents a more difficult problem, leading to social isolation, anxiety, and diminished self-esteem.

Prevent or reduce recurrences

Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.

86-ZOV-5

Prevent recurrences month after month*

ZOVIRAX®
(acyclovir)
CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations in at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: *Teratogenic Effects:* Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

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*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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special feature

The BCBSM Small Area Analysis Project

D. K. Ohrt, M.D., Terence Bernhardt, + Mary Lou Gerdes, † and Francis Ohnsorg, MPH#*

Small Area Analysis (SAA) is a tool used to compare the rates of medical service utilization among population groupings, referred to here as small areas. These "small areas" are naturally occurring medical market areas. The use of the Small Area Analysis information is based on the assumption that there are several key sources of variation in the use of medical services. These include variation in disease rates, supply of providers, and differences in providers' practice styles. Small Area Analysis studies indicate that neither disease rates nor the supply of providers are sufficient to explain the degree of inter-area variation currently observed. Physician practice style has been identified as the primary source of variation for many, but not all, causes of admission. The BCBSM Small Area Analysis project has two primary objectives: to better understand the reason for variation among Minnesota market areas and, when appropriate, to encourage change in physician practice styles by feeding SAA information back to physicians within the BCBSM network.

Utilization Rates

Per capita rates of medical service utilization are calculated by dividing the number of service occurrences, both medical admissions and surgical procedures, by the population in each area. When adjustments are made for age and sex distribution, these rates can be compared across small areas and sometimes differ dramatically.

Small Area Analysis is directed to a geographic area and the physicians practicing within that area. It does not attempt to create provider profiles like those many HMOs, PCOs, and hospital DRG committees use to compare individual physicians. Rather, it compares one area with another or with an average of several areas, allowing for case-mix variation among the individual physicians within any area.

Variation

Identification of variation in medical care is significant because it calls for explanation and should be seen as a critical asset to medical science itself. Analyzing this variation can only lead to improvements in clinical practice, clinical outcomes, and the cost effectiveness of care.

Some procedures and causes of admission show relatively little variation as a result of a high degree of agreement among physicians about the value and appropriateness of these practices. For example, rates for inguinal hernia repair and for acute myocardial infarction show little variation.

Alternatively, many procedures and causes of admission show moderate or even high levels of variation accompanied by a range of opinions among physicians about the value and appropriateness of the practice in question. As examples, rates for lens extractions and admissions for pneumonia vary about fivefold across small areas in Minnesota.

Albeit, complete uniformity of rates among small areas would be neither possible nor desirable, but in many instances the range of rates could be reduced without adversely affecting the quality of care. The lowest rate is not necessarily the "right" rate. Underutilization is no more or less desirable than overutilization.

The History of Small Area Analysis

Small Area Analysis has intermittently appeared in the literature since 1938. However, its practical utility was first clearly demonstrated by Dr. John Wennberg's investigations in the early 1970s. Combining Wennberg's insistence on epidemiological rigor with a systematic, goal-oriented application of feedback and review, SAA has by now attracted considerable recognition, and has been used as both an investigative tool and as a direct means of enhancing the quality of medicine.

Early in 1985, BCBSM staff invited Dr. Wennberg to the Twin Cities to explain his research and its interpretation. Dr. Wennberg also was the keynote speaker for the socioeconomic portion of the Minnesota Medical Association's Annual Meeting in May 1985. The vigorous and open discussion following Dr. Wennberg's presentation marked the beginning of a continuing exchange between BCBSM and physicians across the state.

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BCBSM Small Area Analysis

Since then, BCBSM has formed a Small Area Analysis Subcommittee of its Physician Coordinating Committee and has been licensed to use software developed by the Codman Research Group to facilitate the study of variation. Several years of data are now loaded onto a microcomputer that analyzes variation for selected procedures and hospital admissions in Minnesota. Table 1 is an abbreviated list of medical causes of admission and procedures compiled from BCBSM data where variation among small areas ranged from negligible to very high.

The study findings by BCBSM and its Physician Advisory Committee will be presented to specialty focus groups primarily composed of BCBSM network physicians. Those groups will examine specific causes of admission and procedures and broader issues of variation related to specific small areas. Additional studies will be conducted as directed by the focus groups, which will provide the link between BCBSM and network physicians in the data analysis, research, and education process. It is important to note that questions about the "right rate" primarily will be addressed by the focus groups. Identification of procedures and causes of admission that have a high degree of variation because of a lack of medical consensus about the treatment and/or setting of care will be an important part of the study process.

TABLE 1

Selected causes of admission and procedures*

Medical Cause of Admission (Inpatient)	Cases+	SCV†	Ratio H/L Areas
Acute MI	1,330	26	2.2
Appendicitis	1,371	38	2.3
Fracture of arm, hand	649	54	3.0
Urinary tract stones	1,179	55	4.0
Bronchitis and asthma	1,346	149	4.7
Pneumonia	1,311	190	4.7
In- and Outpatient Procedures			
Inguinal/femoral hernia	1,845	28	2.6
Abdominal hysterectomy	1,677	48	2.9
Vaginal hysterectomy	754	134	3.8
TUR prostatectomy	397	94	3.9
Spinal procedures	959	104	4.5
Lens extraction	1,075	90	5.1
Cardiac catheterization	1,099	196	6.1

*Ranked in order of the ratio of high to low admission rates among 25 small areas in Minnesota.

+The number of cases equals the number of hospital admissions during the 1984 and 1985 calendar years based on BCBSM fee-for-service claims: inpatient only for medical causes of admission; in- and outpatient for procedures. Claims for persons age 0-64 were included in the analysis.

†The systematic component of variation (SCV) statistic estimates the relative systematic component of variation between areas by subtracting the random component of variance from the estimate of total variance. An SCV of 0-40 indicates a low amount of variation across the 25 small areas, 41-90 moderately low, 91-190 moderately high, and 191-plus a high to very high variation.

NOTE: The medical causes of admission and procedures are defined by groupings within the ICD-9 classification system. Information for this table was prepared using software licensed from the Codman Research Group, Inc., Hanover, New Hampshire.

The sharing of information with network physicians will be the key to optimizing utilization levels and in resolving medical care issues when a lack of consensus exists.

Health care providers, primarily physicians (the *managers* of patient care), will be involved at every step of the process. Our goal is to use only high quality data, careful interpretation, and open discussion leading to constructive change. The information will be disseminated and measures implemented to reduce over- and underutilization when a working consensus is reached. BCBSM will be calling upon its provider community for advice and will be discussing this approach with the leadership of organized medicine (Minnesota Medical Association and the specialty societies).

Strategic Implications

Small Area Analysis will help BCBSM and participating physicians address the issues of quality, cost, and effectiveness. Those who pay for health care benefits expect this information to be available so they and the recipients of health care services can make an informed choice. Responsible payers must focus on quality, cost, and effectiveness issues, which we discuss briefly below.

Quality of care: The discussions stimulated by the BCBSM small area variation information will help narrow the range of variation. The rates of procedure X in communities A and B cannot both be correct. Perhaps the low rate is too low. Perhaps the high rate is too high. Failure to use a procedure or inpatient bed when indicated may place the patient's health or well-being in jeopardy. Conversely, unnecessary procedures and hospitalizations may place the patient at increased risk for both morbidity and mortality. In either circumstance the quality of care can be improved.

Medical care costs: Those who pay for health care (business, government, and, to a lesser extent, the individual purchaser of health insurance) want to know what their dollars are buying. The assumed excess of physicians, additional competition from non-physician care givers, and the excess of hospital capacity give business and government—the volume purchasers—greater power in the marketplace.

Small area variation studies will allow physicians to assess the effect of practice styles on the consumption of medical services. Small area variation studies can help physicians function more effectively in the competitive marketplace.

(cont.)

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Effectiveness of the delivery system: The BCBSM provider network must compete with other provider networks in the marketplace. Most business purchasers of BCBSM health coverage programs are subjected to experience rating. Their health benefit costs parallel utilization in the communities where most of their employees receive health care. Overutilization directly affects their bottom line. So does underutilization, although less directly.

BCBSM manages benefits. Physicians manage care. The BCBSM data base and information generating capability will allow physicians to deal directly with some of today's cost/quality issues, enabling them to determine which is the most appropriate approach to a given clinical situation. Those who perform most effectively will be the most successful.

Acknowledgment

The authors wish to thank the members of the BCBSM Physician Advisory Committee, Drs. Frank Johnson, William Petersen, and H. Dawes Miller, for their guidance with the SAA project and their advice in preparing this paper.

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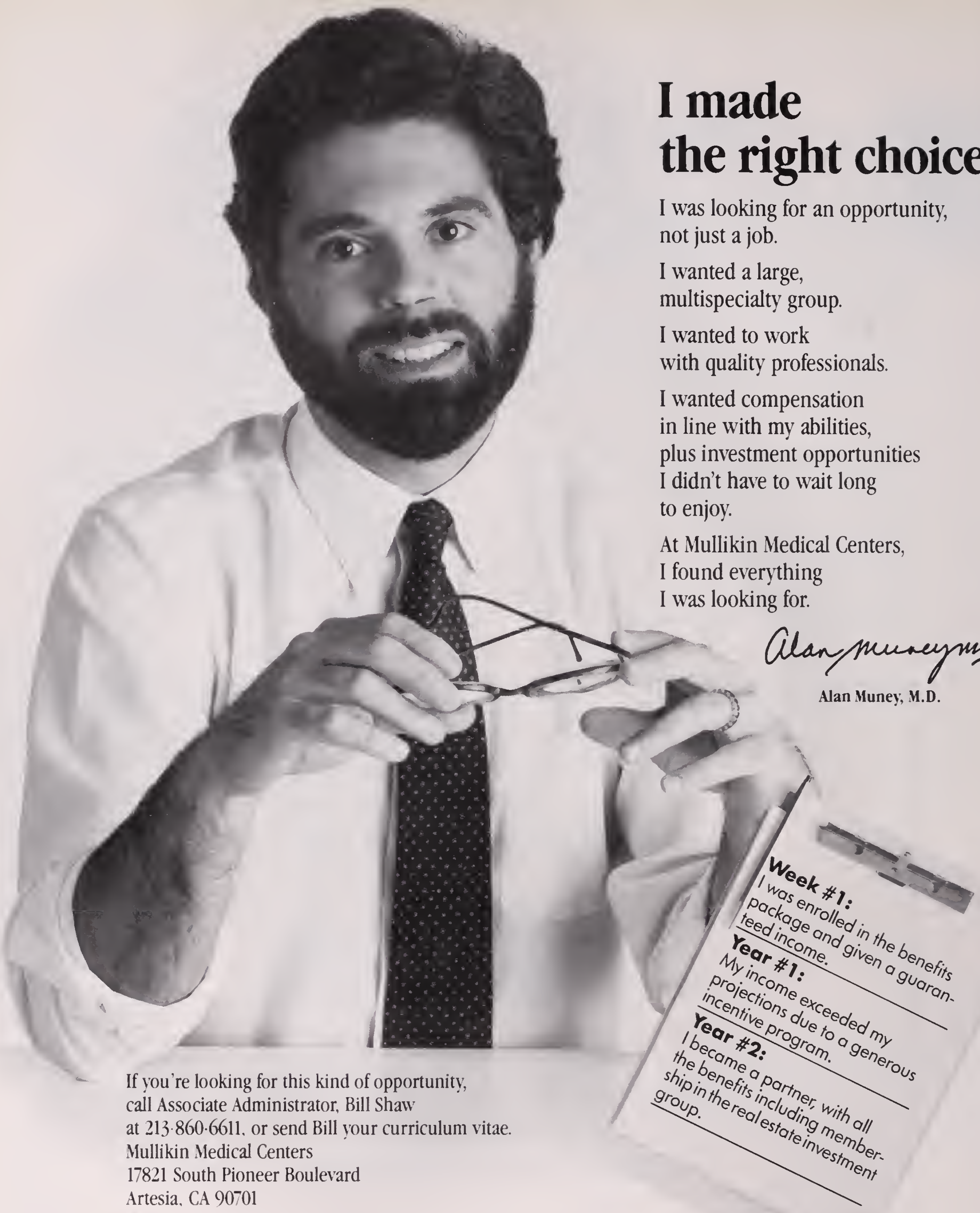

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rheumatology corner

The popliteal cyst

*Robert D. Leff, M.D.**

In 1840 Adams described extra-articular cysts in "chronic rheumatic arthritis of the knee." In 1877 Baker further studied this observation in patients with tuberculous arthritis.[1] There are varied clinical patterns secondary to popliteal cysts that still lead to misdiagnosis with potential major consequences for the patient.

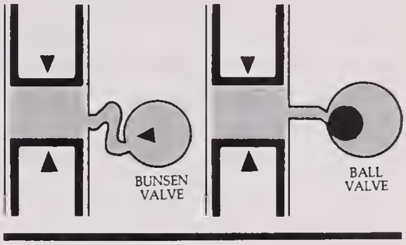
Quadricep contraction normally produces small positive pressures within the knee, but in the presence of arthritis, high positive pressure may develop. The high positive pressure may damage the articular surface, resulting in a thickening of the capsule of the joint, producing cysts. Most popliteal cysts occur in the medical aspect of the posterior capsule, deep to the head of the gastrocnemius tendon.[2] In an autopsy series, approximately 40% of adult knees had an anatomical connection between the anterior knee and a popliteal cyst.[3] It appears that as the knee pressure increases as a result of an effusion and a muscular contraction, fluid is pumped through a valve into a bursa sac in the popliteal fossa. A valvular opening probably allows fluid to pass into the gastrocnemius or gastrocnemius-semi-membranous bursa but not in the reverse direction. The one-way flow of fluid may be due to either a Bunsen-type valve connection or ball-type valve connection (Figure). A ball valve may have a narrow channel through which fluid can be pumped from the knee into the cyst. When higher pressure develops in the reverse direction, the large quantities of fibrin within the cyst plug the opening. Alternatively, in the Bunsen-type valve a narrow, curved passage may exist between the cyst and the knee. This curved passage may collapse under direct cyst pressure.[2]

Any abnormality that produces knee effusions can be associated with popliteal cysts. Inflammatory joint disease is the most common cause of popliteal cysts. Almost all forms of inflammatory joint disease have been associated with popliteal cysts, with the most common disorder being rheumatoid arthritis. Non-inflammatory joint disease such as osteoarthritis of the knee, torn menisci, and chrondromalacia of the patella, can also be associated with popliteal cysts.[1]

Diagnosis

Typically, the patient with a popliteal cyst will describe a bulge in the back of the knee with a feeling of tightness that increases with walking and that may mimic symptoms of intermittent claudication. It is important to do a careful evaluation by physical exam of the knee prior to any invasive procedure. The popliteal fossa is most easily palpated in 90 degrees of flexion. Comparison with the opposite knee may help the examiner to decide whether significant swelling is present, unless the swelling is bilateral. Intense swelling of the popliteal cyst also can cause a flexion deformity of the knee.

Popliteal cysts frequently can be identified by ultrasonography, which can demonstrate a synovial cyst but will not identify leakage and therefore, may be unreliable in the presence of a leaking popliteal cyst that has collapsed. Arthrography of the knee may illustrate a cyst or leakage of a calf cyst. On occasion, arthrography will be negative when the communication between the knee joint and the cyst has been occluded.[4]



FIGURE—One-way flow of fluid Bunsen-type valve and ball-type valve.

Clinical Syndromes

Clinical syndromes involving popliteal cysts are varied. Popliteal cysts can rupture and extravasate into the calf or can dissect in toto into the calf as well. In addition, there have been a few cases of dissection of the popliteal cyst into the thigh. Compression of the tibial nerve by synovial cyst mimicking sciatica or producing foot drop has also been reported.[3]

A popliteal cyst may cause the pseudothrombophlebitis syndrome that encompasses a group of disorders characterized by acute inflammation of the calf, mimicking signs and symptoms of deep vein thrombophlebitis. The enlarging cyst may press on such surrounding structures as the popliteal vein, causing displacement, which could cause distension of the veins of the foot with pitting leg edema simulating deep venous thrombosis and does not necessarily imply synovial cyst rupture. Venous compression by the expanding popliteal cyst often causes a positive Homan's sign and tenderness in the calf simulating that of thrombophlebitis.[5]

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*Internal medicine, Duluth Clinic, Duluth, MN.

The differentiation between pseudothrombophlebitis syndrome and true deep venous thrombosis is important with respect to therapeutic implications. When trying to decide whether a person has a deep venous thrombosis or the pseudothrombophlebitis syndrome, the physician should first choose either ultrasound of the calf and knee or an arthrogram. Occasionally, the two syndromes can occur together and if a deep venous thrombosis is also suspected, then venography is indicated. Occasionally other conditions may mimic a popliteal cyst but only rarely give rise to the pseudothrombophlebitis syndrome. These conditions are noted (Table).[5] The majority of the conditions can be eliminated by careful history and physical examination.

TABLE
Differential diagnosis of a popliteal mass

1. Plantaric muscle rupture
2. Rupture of head of gastrocnemius muscle
3. Popliteal artery aneurysm
4. Neoplasms
5. Prominent fat pads
6. Lipomata
7. Lymphadenopathy
8. Varicosities

Treatment

Bedrest with the leg elevated is indicated for acute symptoms from popliteal cyst, especially if leakage has occurred. Also, quadricep strengthening exercises should be avoided as the resultant increase in knee pressure may cause cyst rupture.[3] If there is a significant knee effusion, injection intra-articularly of steroid medications following aspiration of fluid may give significant early pain relief, ameliorate the swelling, and help prevent acute knee flexion contractures. In addition, appropriate anti-inflammatory drugs should be used to control the underlying arthritis. If a mechanical derangement of the knee is causing the cyst, then surgical intervention may be indicated. Anti-coagulation should not be used unless venous thrombosis has been demonstrated with certainty because of the potential for bleeding into the popliteal cyst. Conservative treatment with one or more intra-articular steroid injections is usually successful in treating popliteal cysts in patients with inflammatory arthritis but rarely is surgical excision of the cyst indicated. Surgery is indicated only after conservative measures have failed.

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national health observances

APRIL 1987

Cancer Control Month. American Cancer Society, Public Information Department, 90 Park Avenue, New York, NY 10016; (212) 736-3030. Materials: flyers, pamphlets, door-to-door fund raising. The focus is on early detection of breast cancer. Contact: local chapters or Irvin Rimer at the head office.

5-11 **National Medic Alert Week.** Medic Alert Foundation International, PO Box 10009, 2323 Colorado, Turlock, CA 95381; (800) 344-3226. Materials: pamphlets, posters. Contact: Mary Vallot or Field Service Department.

5-11 **National Building Safety Week.** National Safety Council, 444 North Michigan Avenue, Chicago, IL 60611; (312) 527-4800. Contact: Hans Grigo at ext 7210.

7 **World Health Day.** American Association for World Health, 2001 S Street SW, Suite 530, Washington, DC 20009; (202) 265-0286. The focus is on immunization. Materials: press releases, posters, stickers, resource list, exhibit. Contact: Steve Morrill.

7-13 **World Health Week.** American Association for World Health. 2001 S Street SW, Suite 530, Washington, DC 20009; (202) 265-0286. Materials: press releases, posters, stickers, resource list, exhibit. Contact: Steve Morrill.

19-25 **National Bike Safety Week.** National Safety Council, 444 North Michigan Avenue, Chicago, IL 60622; (312) 527-4800. Contact: Donna Siegfried at ext 7206.

Apr 25-May 1 **Hemochromatosis Week.** Hemochromatosis Research Foundation, PO Box 8569, Albany, NY 12208; (518) 489-0972. Materials: posters, flyers. Contact: Dr. Mary Krikker.

Apr 26-May 1 **Save the Children Week.** Save the Children, 54 Wilton Road, Westport, CT 06880; (203) 226-7271. Materials: not yet determined. Contact: Judy Martin.

Apr 26-May 2 **National Organ Donor Awareness Week.** American Council on Transplantation, 4701 Willard Avenue, Suite 222, Chevy Chase, MD 20815; (301) 652-0994. Materials: packet. Contact: The office.

Apr 27-May 3 **Clean Air Week.** American Lung Association, 1740 Broadway, New York, NY 10019; (212) 315-8700. Materials: assortment of materials. Contact: Roland White.

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* **WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

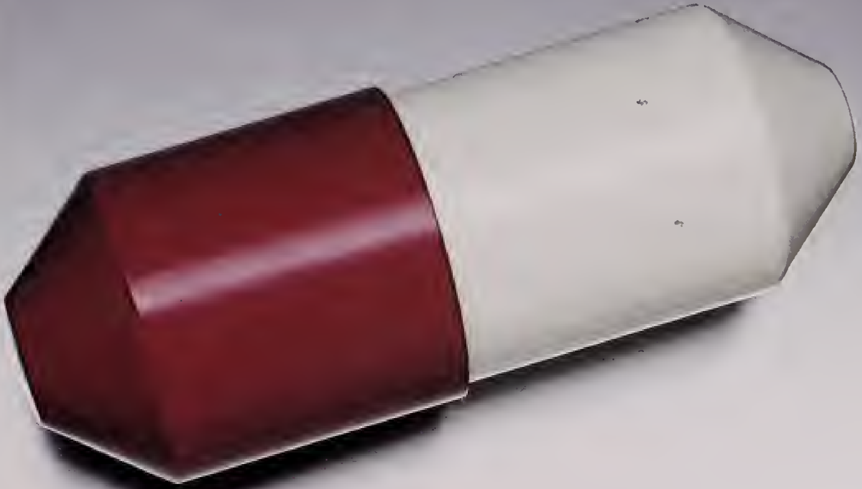
Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ.L42

In Hypertension*... When You Need to Conserve K^+

Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum K^+ and BUN should be checked periodically (see Warnings and Precautions).



Potassium-Sparing

DYAZIDE®

25 mg Hydrochlorothiazide/**50 mg** Triamterene/SKF

Over 20 Years of Confidence

The unique
red and white
Dyazide® capsule:
Your assurance of
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VERYTHING

Effective control time and time again[1]

Effective control of fasting and postprandial glucose—patient after patient, meal after meal, year after year.

Insulin when it's needed

Insulin levels are rapidly elevated in response to a meal, then return promptly to basal levels after the meal challenge subsides.

Timed to minimize risks

Rapidly metabolized and excreted, with an excellent safety profile.[1] As with all sulfonylureas, hypoglycemia may occur.

In concert with diet in non-insulin-dependent diabetes mellitus

Glucotrol®
(glipizide) 5-mg and 10-mg Scored Tablets

SYNCHRONIZED SULFONYLUREA THERAPY

Please see brief summary of Glucotrol® (glipizide) prescribing information on next page.

ROERIG Pfizer
A division of Pfizer Pharmaceuticals
New York, New York 10017

Reference:

1. Sachs R, Frank M, Fishman SK. Overview of clinical experience with glipizide. In *Glipizide: A Worldwide Review*. Princeton, NJ, Excerpta Medica, 1984, pp 163-172

GLUCOTROL® (glipizide) Tablets

Brief Summary of Prescribing Information

INDICATIONS AND USAGE: GLUCOTROL is indicated as an adjunct to diet for the control of hyperglycemia in patients with non-insulin-dependent diabetes mellitus (NIDDM, type II) after an adequate trial of dietary therapy has proved unsatisfactory.

CONTRAINDICATIONS: GLUCOTROL is contraindicated in patients with known hypersensitivity to the drug or with diabetic ketoacidosis, with or without coma, which should be treated with insulin.

SPECIAL WARNING ON INCREASED RISK OF CARDIOVASCULAR MORTALITY: The administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin. This warning is based on the study conducted by the University Group Diabetes Program (UGDP), a long-term prospective clinical trial designed to evaluate the effectiveness of glucose-lowering drugs in preventing or delaying vascular complications in patients with non-insulin-dependent diabetes. The study involved 823 patients who were randomly assigned to one of four treatment groups (*Diabetes*, 19, supp. 2:747-830, 1970).

UGDP reported that patients treated for 5 to 8 years with diet plus a fixed dose of tolbutamide (1.5 grams per day) had a rate of cardiovascular mortality approximately 2-1/2 times that of patients treated with diet alone. A significant increase in total mortality was not observed, but the use of tolbutamide was discontinued based on the increase in cardiovascular mortality, thus limiting the opportunity for the study to show an increase in overall mortality. Despite controversy regarding the interpretation of these results, the findings of the UGDP study provide an adequate basis for this warning. The patient should be informed of the potential risks and advantages of GLUCOTROL and of alternative modes of therapy.

Although only one drug in the sulfonylurea class (tolbutamide) was included in this study, it is prudent from a safety standpoint to consider that this warning may also apply to other oral hypoglycemic drugs in this class, in view of their close similarities in mode of action and chemical structure.

PRECAUTIONS: Renal and Hepatic Disease: The metabolism and excretion of GLUCOTROL may be slowed in patients with impaired renal and/or hepatic function. Hypoglycemia may be prolonged in such patients should it occur.

Hypoglycemia: All sulfonylureas are capable of producing severe hypoglycemia. Proper patient selection, dosage, and instructions are important to avoid hypoglycemia. Renal or hepatic insufficiency may increase the risk of hypoglycemic reactions. Elderly, debilitated or malnourished patients and those with adrenal or pituitary insufficiency are particularly susceptible to the hypoglycemic action of glucose-lowering drugs. Hypoglycemia may be difficult to recognize in the elderly or people taking beta-adrenergic blocking drugs. Hypoglycemia is more likely to occur when caloric intake is deficient, after severe or prolonged exercise, when alcohol is ingested, or when more than one glucose-lowering drug is used.

Loss of Control of Blood Glucose: A loss of control may occur in diabetic patients exposed to stress such as fever, trauma, infection or surgery. It may then be necessary to discontinue GLUCOTROL and administer insulin.

Laboratory Tests: Blood and urine glucose should be monitored periodically. Measurement of glycosylated hemoglobin may be useful.

Information for Patients: Patients should be informed of the potential risks and advantages of GLUCOTROL, of alternative modes of therapy, as well as the importance of adhering to dietary instructions, of a regular exercise program, and of regular testing of urine and/or blood glucose. The risks of hypoglycemia, its symptoms and treatment, and conditions that predispose to its development should be explained to patients and responsible family members. Primary and secondary failure should also be explained.

Drug Interactions: The hypoglycemic action of sulfonylureas may be potentiated by certain drugs including nonsteroidal anti-inflammatory agents and other drugs that are highly protein bound, salicylates, sulfonamides, chloramphenicol, probenecid, coumarins, monoamine oxidase inhibitors, and beta adrenergic blocking agents. *In vitro* studies indicate that GLUCOTROL binds differently than tolbutamide and does not interact with salicylate or dicumarol. However, caution must be exercised in extrapolating these findings to a clinical situation. Certain drugs tend to produce hyperglycemia and may lead to loss of control, including the thiazides and other diuretics, corticosteroids, phenothiazines, thyroid products, estrogens, oral contraceptives, phenytoin, nicotinic acid, sympathomimetics, calcium channel blocking drugs, and isoniazid. A potential interaction between oral miconazole and oral hypoglycemic agents leading to severe hypoglycemia has been reported. Whether this interaction also occurs with the intravenous, topical, or vaginal preparations of miconazole is not known.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 20-month study in rats and an 18-month study in mice at doses up to 75 times the maximum human dose revealed no evidence of drug-related carcinogenicity. Bacterial and *in vivo* mutagenicity tests were uniformly negative. Studies in rats of both sexes at doses up to 75 times the human dose showed no effects on fertility.

Pregnancy: Pregnancy Category C. GLUCOTROL (glipizide) was found to be mildly fetotoxic in rat reproductive studies at all dose levels (5-50 mg/kg). This fetotoxicity has been similarly noted with other sulfonylureas, such as tolbutamide and tolazamide. The effect is perinatal and believed to be directly related to the pharmacologic (hypoglycemic) action of GLUCOTROL. In studies in rats and rabbits no teratogenic effects were found. There are no adequate and well controlled studies in pregnant women. GLUCOTROL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Because recent information suggests that abnormal blood glucose levels during pregnancy are associated with a higher incidence of congenital abnormalities, many experts recommend that insulin be used during pregnancy to maintain blood glucose levels as close to normal as possible.

Nonteratogenic Effects: Prolonged severe hypoglycemia has been reported in neonates born to mothers who were receiving a sulfonylurea drug at the time of delivery. This has been reported more frequently with the use of agents with prolonged half-lives. GLUCOTROL should be discontinued at least one month before the expected delivery date.

Nursing Mothers: Since some sulfonylurea drugs are known to be excreted in human milk, insulin therapy should be considered if nursing is to be continued.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In controlled studies, the frequency of serious adverse reactions reported was very low. Of 702 patients, 11.8% reported adverse reactions and in only 1.5% was GLUCOTROL discontinued.

Hypoglycemia: See PRECAUTIONS and OVERDOSAGE sections.

Gastrointestinal: Gastrointestinal disturbances, the most common, were reported with the following approximate incidence: nausea and diarrhea, one in 70; constipation and gastralgia, one in 100. They appear to be dose-related and may disappear on division or reduction of dosage. Cholestatic jaundice may occur rarely with sulfonylureas: GLUCOTROL should be discontinued if this occurs.

Dermatologic: Allergic skin reactions including erythema, morbilliform or maculopapular eruptions, urticaria, pruritus, and eczema have been reported in about one in 70 patients. These may be transient and may disappear despite continued use of GLUCOTROL; if skin reactions persist, the drug should be discontinued. Porphyria cutanea tarda and photosensitivity reactions have been reported with sulfonylureas.

Hematologic: Leukopenia, agranulocytosis, thrombocytopenia, hemolytic anemia, aplastic anemia, and pancytopenia have been reported with sulfonylureas.

Metabolic: Hepatic porphyria and disulfiram-like alcohol reactions have been reported with sulfonylureas. Clinical experience to date has shown that GLUCOTROL has an extremely low incidence of disulfiram-like reactions.

Endocrine Reactions: Cases of hyponatremia and the syndrome of inappropriate antidiuretic hormone (SIADH) secretion have been reported with this and other sulfonylureas.

Miscellaneous: Dizziness, drowsiness, and headache have been reported in about one in fifty patients treated with GLUCOTROL. They are usually transient and seldom require discontinuance of therapy.

OVERDOSAGE: Overdosage of sulfonylureas including GLUCOTROL can produce hypoglycemia. If hypoglycemic coma is diagnosed or suspected, the patient should be given a rapid intravenous injection of concentrated (50%) glucose solution. This should be followed by a continuous infusion of a more dilute (10%) glucose solution at a rate that will maintain the blood glucose at a level above 100 mg/dL. Patients should be closely monitored for a minimum of 24 to 48 hours since hypoglycemia may recur after apparent clinical recovery. Clearance of GLUCOTROL from plasma would be prolonged in persons with liver disease. Because of the extensive protein binding of GLUCOTROL (glipizide), dialysis is unlikely to be of benefit.

DOSAGE AND ADMINISTRATION: There is no fixed dosage regimen for the management of diabetes mellitus with GLUCOTROL. In general, it should be given approximately 30 minutes before a meal to achieve the greatest reduction in postprandial hyperglycemia.

Initial Dose: The recommended starting dose is 5 mg before breakfast. Geriatric patients or those with liver disease may be started on 2.5 mg. Dosage adjustments should ordinarily be in increments of 2.5-5 mg, as determined by blood glucose response. At least several days should elapse between titration steps.

Maximum Dose: The maximum recommended total daily dose is 40 mg.

Maintenance: Some patients may be effectively controlled on a once-a-day regimen, while others show better response with divided dosing. Total daily doses above 15 mg should ordinarily be divided.

HOW SUPPLIED: GLUCOTROL is available as white, dye-free, scored diamond-shaped tablets imprinted as follows: 5 mg tablet—Pfizer 411 (NDC 5 mg 0049-4110-66) Bottles of 100; 10 mg tablet—Pfizer 412 (NDC 10 mg 0049-4120-65) Bottles of 100.

CAUTION: Federal law prohibits dispensing without prescription.

More detailed professional information available on request.

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New York, New York 10017

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YOU COULD LEARN A LOT FROM A DUMMY. BUCKLE YOUR SAFETY BELT.
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U.S. Department of Transportation

malpractice claim review

Corporate Policy

MMIE Risk Management Committee
Paul S. Sanders, M.D., Chairperson

Allegation

Patient denied employment because of inappropriate chart entry.

Facts

The patient, a 67-year-old male, was seen by Dr. X on April 30, 1982, because of an injury he received at work. Several weeks later, when the patient requested his records from the clinic to submit them to the workers' compensation insurance company, he noted the billing clerk had made the following entry in the chart: "Mr. ______________ in—upset as usual—before leaving said to send bill to Vets and he would see about it—has card for Valium and Demerol he says!!" Upon seeing this entry the patient became very angry and claimed it had caused him to be denied a $30,000-a-year position with the government. Although the patient stated his records had been sent to his prospective employer, an authorization did not appear in the records nor was there notation in the chart that the records had been sent, as is the clinic's usual and customary procedure. After attempts to resolve the matter with the clinic administrator failed, the patient filed suit in Conciliation Court and filed a claim with the Board of Medical Examiners.

Disposition

This case settled for $1,000.

Reasons for Settlement

Initially, the clinic took the position that the patient's records had not been released because there was no notation in the chart nor was there a signed authorization in the records. The patient, however, obtained proof from his prospective employer that his medical records had been received and considered at the time his job application was reviewed. The claimant was able to show that the inappropriate chart entry created the impression that he had an unstable personality and was a drug user, and this led him to be denied the job for which he had applied.

Risk Management Comments

- Because medical records are frequently reviewed for determination of insurance benefits, job applications, and other non-treatment related matters, it is critical that all documentation be objective and done by appropriate personnel. Many claims have arisen due to denial of benefits based on erroneous or disparaging information contained in the record.
- Beyond the denial of benefits, jobs, etc., the objectivity of the medical record can be critical in the defense of a malpractice claim. The medical record should contain only information relating to a patient's medical care and treatment. Information unrelated to the patient's treatment such as billing matters, should not be included. Rather, this type of information should be kept in a separate file in the billing department. If the record should become an issue in a malpractice claim, comments related to billing information may create for the jury an adverse impression that the physician was more concerned with his or her fee than with the patient's treatment.
- Disparaging comments about a patient in the record can result in the suggestion that treatment was based on negative feelings toward the patient rather than on medical judgment, e.g., describing the patient as a "malingerer" rather than stating "no objective evidence found to account for patient's reported symptoms." Therefore, only factual and objective documentation should be included.

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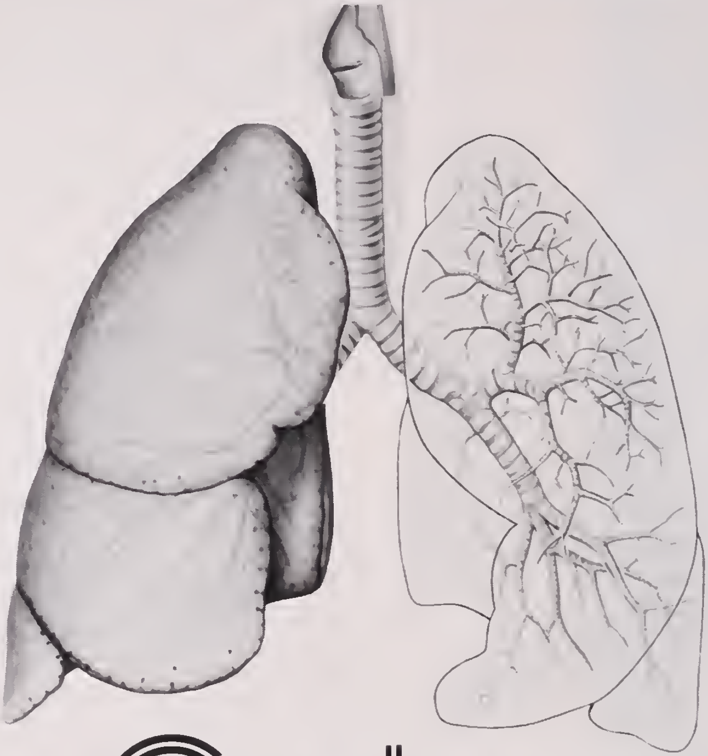
Consider the causative organisms...



Ceclor®
cefaclor

250-mg Pulvules® t.i.d.
offers effectiveness against the major causes of bacterial bronchitis

Haemophilus influenzae, *H influenzae*, *Streptococcus pneumoniae*, *Streptococcus pyogenes*
(ampicillin-susceptible) (ampicillin-resistant)

Note: Ceclor® is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

Ceclor® (cefaclor)

Summary. Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Contraindications: Known allergy to cephalosporins.

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- In renal impairment, safe dosage of Ceclor may be lower than that usually recommended. Ceclor should be administered with caution in such patients.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, erythema multiforme, serum-sickness-like reactions): 1.5%; usually subside within a few days after cessation of therapy. These reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%.

Abnormalities in laboratory results of uncertain etiology

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children)
- Abnormal urinalysis; elevations in BUN or serum creatinine
- Positive direct Coombs' test
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly)

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Lilly

Additional information available to the profession on request from Eli Lilly and Company Indianapolis, Indiana 46285

Eli Lilly Industries, Inc.
Carolina, Puerto Rico 00630

600332

letters to the editor

Smoke-Free Directory

The Minnesota Coalition for a Smoke-Free Society 2000 has just published a 74-page directory listing smoking cessation programs in Minnesota. The Coalition believes the directory will be a very important referral for doctors in encouraging their patients to quit smoking. The directory lists, by county, the type of program (individual, group), location, address, contact person, and phone numbers. Patients thus receive a direct referral to a program located in their area.

"A Guide to Smoking Cessation Programs in Minnesota" may be ordered from the Minnesota Coalition for a Smoke-Free Society 2000, Health Associations Center, Suite 400, 2221 University Avenue SE, Minneapolis, Minnesota 55414. There is a $5 charge for each directory.

Michael F. Maile
Executive Director,
Minnesota Coalition for a
Smoke-Free Society 2000

A Smoke-Free IHS

The Indian Health Service (IHS) has now established a 100% tobacco smoke-free environment as the standard policy and practice at all of its approximately 200 facilities throughout 25 states. The IHS endorsement of the "Smoke-Free Hospitals by 1990" project of the Minnesota Coalition for a Smoke-Free Society 2000 has encouraged many others to establish smoke-free hospitals/workplaces as a new national standard. Following is a summary of the IHS policy, which your readers may find useful.

Purpose: To document that in accordance with the Indian Health Service (IHS) mission to assure the highest possible health status and health protection of American Indian/Alaska Native people and the credibility of its commitment to disease prevention, the IHS standard calls for a clean/healthy smoke-free environment throughout IHS facilities.

Background: The IHS recognizes "cigarette smoking as the chief single avoidable cause of death in our society and the most important public health issue of our time," and that the concept of a smoke-free workplace and all shared enclosed public places has become the national standard. The IHS has verified at all levels, with American Indian/Alaska Native community participation, involvement, and concurrence, that a 100% smoke-free clean indoor air environment is the standard to be attained at all IHS locations.

- A clean non-polluted air/water/earth environment and a commitment to total wellness promotion is consistent with the long-held American Indian/Alaska Native value system of respect for Mother Earth.
- Smoking cessation is only one component of total wellness promotion at IHS facilities. The benefits of proper diet, exercise, weight control, and prevention of alcoholism and chemical substance abuse of all types are to be taught and exemplified.
- Support for smoking cessation will include the following: positive professional role model examples and counseling, group peer example reinforcement, referral to smoking cessation classes, and the use of nicotine-containing gum under prescription of a physician in those cases in which withdrawal from nicotine addiction is sufficient to warrant it.

Policy: Smoking is not permitted anywhere within the facilities of the Indian Health Service or in IHS-managed portions of buildings shared with other agencies or organizations.

- This standard is applicable to staff, visitors, and patients. Anyone who smokes on these premises will be requested to do so outside the building only. Signs stating the IHS smoke-free environment standard will stress positive commitment to wellness promotion and disease prevention as part of the IHS mission.
- Signs clearly stating that "Smoking is Permitted Outside the Building Only" will be conspicuously posted at a sufficient number of locations, entrances, etc., to guarantee that the message is clear to anyone who enters IHS facilities. Receptacles will be placed near building entrances for the safe disposal of smoking materials.
- Courtesy will be shown in pointing out the policy to violators. However, if anyone insists on smoking despite being informed that he or she is in violation of IHS policy, appropriate corrective action will be taken to assure that clean indoor air standards are maintained.

Leland L. Fairbanks, M.D., M.P.H.
Smoke-Free Environment Coordinator
Indian Health Service

(cont.)

PRO Sanctioning

Among the many irritating and mystifing obstacles the physician faces today none are as infuriating and frightening as the PRO-initiated denial of hospitalization and sanction procedure. Nor are there any that are as poorly understood. Currently, the PRO contract is held by the Foundation for Health Care Evaluation, an organization founded by and composed of Minnesota physicians. This fact is frequently overlooked, particularly in the sensitive areas of denials and sanctions. In part, this is because the majority of communications between the PRO and physicians is conducted by nonphysician PRO staff members who are extremely limited by both law and usage in what they are allowed to say, particularly on the telephone. Consequently, they often seem to be evasive and obstructionist when, in fact, they are adhering to rules about which they have no choice.

I take part in both the review process and, as a member of the Medical Standards and Practice Committee of the Foundation, in the process leading to possible sanctions against physicians. This committee, like the other policy-setting parts of the Foundation, is composed almost entirely (15 of 17) of practicing physicians. All chart reviews leading to denials are reviewed by at least one, and usually two, physicians in practice. In fact, the review process is by physicians, and all decisions are ratified by physicians.

It is quite clear to me from conversations with other physicians both within the review process and informally that the medical community does not clearly understand how the review and sanction process works. I have heard startling rumors and misconceptions about the process, demonstrating the fear it engenders. It is also clear to me that this lack of understanding creates much of the difficulty physicians have with the system. Because a system of review and sanction will continue, at least in some form, it is important to educate physicians about how the process works. I believe that this understanding may actually improve patient care as well.

At United Hospitals, we are starting a pilot study, with the support of the hospital and the Foundation, to test the hypothesis that direct physician-to-physician contact regarding difficulties with the PRO will help dispel some of the existing fear and resentment, render physicians more effective in dealing with the PRO and its requirements, demonstrate that all physicians have a stake in the process, and, perhaps, a responsibility to improve it. Briefly, the study calls for a physician experienced in the review process to discuss proposed denials, and sanction concerns if requested, with physicians who wish to do so (a certain percentage of proposed denials will be delivered to the attending by this physician). At the end of a given time, results of intervention and physician acceptance will be assessed. This proposal is not sponsored by the PRO (nor is it opposed), but, rather, by the Foundation and the physicians who comprise it.

For further information, please contact Dr. Davitt Felder or Dr. Norman Steinberg at United Hospitals, St. Paul.

Norman Steinberg, M.D.
United Hospitals, St. Paul

Higher Peaks

Dr. Joseph B. Friberg, Minneapolis, and Dr. Harry C. Webster, Massachusetts, pointed out to *Minnesota Medicine* editors that Mt. Cook, featured on the February cover, is indeed beautiful but certainly not the highest peak in the southern hemisphere, as we had stated.

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Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

APRIL 1987

2-4 **Primary Care Medicine** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

3-4 **Borderline Syndrome in Adolescents** Abbott-Northwestern Hospital; The Saint Paul Hotel, St. Paul, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

3-4 **Colorectal Problems in Primary Care** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street, SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-7 **Annual Ophthalmology Course: Pediatric Strabismus** CME, Medical School, University of Minnesota; Holiday Inn-Downtown, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

6-8 **Minnesota Academy of Family Physicians Annual Spring Refresher** Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington, Minnesota. CONTACT: Virginia Barzan, Executive Director, MAFP, 2221 University Avenue SE, Suite 426, Minneapolis, Minnesota 55416; (612) 623-2890.

8 **Update on Clinical Use of New Antibiotics** CME, University of Minnesota Medical School; Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street, SE, Minneapolis, Minnesota 55455; (612) 626-5525.

9-10 **Obstetrics and Gynecology Update** CME, St. Paul-Ramsey Medical Center, Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

9-10 **Eating Disorders** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

9-11 **Allergy and Clinical Immunology** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10 **ENT Update Workshop for Family Physicians** St. Joseph's Hospital, St. Paul-Ramsey Medical Center and the University of Minnesota Medical School; Margaret G. Scheffer Auditorium at St. Joseph's Hospital, St. Paul, Minnesota. CONTACT: Ruth K. McIntyre, CME, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3992.

10 **Third Annual Duluth Heart Conference** The Duluth Clinic, Ltd. & St. Mary's Medical Center, Regional Heart Center; Spirit of the North Theater, Fitger's on the Lake, Duluth, Minnesota. CONTACT: James G. Brueggemann, M.D., 400 East Third Street, Duluth, Minnesota 55805; (218) 722-8364.

10 **Annual John R. Sebald Memorial Symposium** Metropolitan Hand Surgery Association and United Hospital, St. Paul, Minnesota. CONTACT: Carol Toenjes, United Hospital Marketing Department, 333 North Smith Avenue, St. Paul, Minnesota 55102; (612) 298-8549.

10-11 **Rhinomanometry** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Bill Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

10-11 **10th Annual Update in Clinical Cardiology** Abbott-Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

13-17 **Team Management of Diabetes Mellitus** International Diabetes Center; Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

20-24 **Family Practice Review: Update 1987** CME, Medical School, University of Minnesota; Radisson Hotel South, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

21 **Oncology — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext 259.

23-24 **Difficult Decisions in Pediatrics** Mayo Clinic, Mayo Clinic, Rochester, Minnesota. CONTACT: Patricia S. Simmons, M.D., Department of Pediatrics, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2511.

24 **Ophthalmic Reviews** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

24-25 **Mayo Clinic Audiology Symposium** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

25 **OB/GYN Update** Bemidji Clinic and North County Hospital; Holiday Inn Convention Center, Bemidji, Minnesota. CONTACT: Darlene Hurley, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601; (218) 751-1280.

25 **Minnesota Urological Society Annual Spring Seminar** Minnesota Urological Society; L'hotel Sofitel, Minneapolis, Minnesota. CONTACT: Helen Chanak, 3625 West 65th Street, Suite 120, Edina, Minnesota 55435; (612) 920-7660.

29-30 **Alzheimer Disease: Toward a Standard of Care** CME, University of Minnesota Medical School; Radisson St. Paul Hotel, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

APR 30-MAY 1 **Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies** Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

MAY 1987

4-5 **Practice of Internal Medicine** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

6-8 **Minnesota Medical Association's 134th Annual Meeting and Scientific Program** Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

7 **Managing Quality in the Physician Office Laboratory** CME, University of Minnesota Medical School; Moos Tower, U of M, Minneapolis, Minnesota. CONTACT: Office of CME; Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

13-14 **Human Aging X: Transitional Care** CME, Medical School, University of Minnesota; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525

15-16 **The Complicated Diabetic** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-20 **North American Primary Care Research Group** CME, Medical School, University of Minnesota; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

19 **Gynecologic Oncology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

20 **Dermatology** CME; Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext 259.

20-22 **Current Concepts in Radiation Therapy** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Medical School, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

29-30 **Obstetrics-Gynecology Update** Park Nicollet Medical Foundation; Naegele Auditorium at Park Nicollet Medical Center, Minneapolis, Minnesota. CONTACT: Elaine Anderson, Park Nicollet Medical Foundation, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3703.

29-31 **Surgery for the Primary Care Physician** CME, Medical School, University of Minnesota; Grandview Lodge, Brainerd, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

JUNE

1-3 **Laser Surgery - Gynecology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

4-5 **Unstable Coronary Lesions** CME, University of Minnesota Medical School; Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

5-6 **Workshops on Clinical Hypnosis** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-12 **Laboratory Medicine** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

11-13 **Interventional Radiology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

16 **Orthopedic Surgery** CME; Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext 259.

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■ Placement and cancellation of ads must be made 6 weeks prior to the date of publication (i.e., November 15 for January ad). Please send ad requests to Minnesota Medicine, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414.

■ The right is reserved to decline or withdraw advertisements at the publisher's discretion. The publisher is not responsible for clerical or typographical errors and is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

For Sale: Urology Practice, Independent Urologist. Beautiful small town of 25,000. Only Urologist in 50-mile radius. Excellent schools. Three colleges. Plan to retire as soon as practice is sold. Call (507) 452-1122. 3-4/87

Family Practice, West St. Paul, Minnesota: Needs BC/BE family physician to replace retiring physician. Obstetrics a plus. Excellent facilities, comprehensive benefits, and guaranteed salary with option to buy into group. Clinic is well established with six physicians and offers excellent opportunities for growth. Send inquiries to: J.A. Beall, M.D., Westview Clinic, PA, 156 East Emerson, West St. Paul, Minneapolis, Minnesota 55118; (612) 457-6531. 3-4/87

The Berkshire Health System offers the following practice opportunities: Family Medicine — special opportunity available immediately for family physician. Significant growth anticipated during next five years. Small town practice located approximately 20 miles from hospital. Position is with 622-bed tertiary care facility with medical school affiliations located in Berks County, Pennsylvania, two hours from Philadelphia. Position offers competitive compensation package and excellent fringe benefits. Internal Medicine/Family Medicine — hospital-based opportunities with 200-bed hospital serving city of Reading. Financial arrangements negotiatable. Practice growth is anticipated in future. Community offers quality of life of mid-sized city with access to cultural and entertainment areas of Northeast region. Contact: Deborah Anderst, Vice President, Physician Support Services, The Berkshire Health System, Sixth and Spruce Streets, West Reading, Pennsylvania 19611; (215) 378-6459. 3-4/87

Internist wanted immediately to join multipractice group in the lake region of South Dakota. First-year salary guarantee with excellent fringe benefits. Please reply with CV to: Joel Frey, Administrator, Bartron Clinic, PC, 320 7th Avenue SE, Watertown, South Dakota 57201; or call ac(605) 886-8471. 3-4/87

St. Peter Regional Treatment Center seeks clinical director and staff psychiatrist. 600-bed MI, MR, CD, Forensic, JCAH accredited. Sarary: 75k to 90k + 30k bonus plan. Full benefits, education leave, U of M Psychiatry Department appointment. One hour from Minneapolis/St. Paul. Many local amenities. Contact: Thomas Stapleton, M.D., SPRTC, St. Peter, Minnesota 56082. 3-4/87

Family Practitioner/WI: BC/BE to join 23-physician multispecialty group. Progressive hospital equipped with CT scanner. Service population of 60,000/80,000 university community. Reply: Administrator, 2501 Main Street, Stevens Point, Wisconsin 54481 or call collect (715) 344-4120. 3-4/87

Twenty-nine Physician Multispecialty Clinic located in desirable east central Wisconsin location is seeking Board Certified or Board Qualified orthopedic surgeon to round out its services. Lab, X-ray, excellent hospital. Liberal guarantee and benefits. If interested contact: D.F. Sweet, M.D., Fond du Lac Clinic, S.C., 80 Sheboygan Street, Fond du Lac, Wisconsin 54935. (R)

Staff Psychiatrist: An opening exists for a general psychiatrist with Hennepin Faculty Associates. Salary and benefits are generous. Requirements are: Board eligibility, Minnesota licensure, and potential for appointment in the Department of Psychiatry at the University of Minnesota. Position would be largely involved with in-patient care of acutely ill patients at Hennepin County Medical Center, and/or Metropolitan Medical Center. This would be in association with over a dozen other full-time psychiatrists engaged in clinical care, teaching, research, and forensics. Contact: William W. Jepson, M.D., Chief of Psychiatry, Hennepin County Medical Center, 701 Park Avenue South, Minneapolis, Minnesota 55415; (612) 347-5764. (R)

Sathe & Associates Executive Search Firm is currently seeking physicians for positions locally and nationally. Explore new opportunities with a medical professional who is discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write: Liz Johnson: Sathe & Assocaiates, Inc., 5821 Cedar Lake Road, St. Louis Park, Minnesota 55416; (612) 546-2100 (R)

Family Practitioner: Marshfield Clinic-Colby Center is seeking a Board Certified/Board Eligible family practitioner to join another family practitioner in an established office-based group practice in Colby, Wisconsin. The Colby Center offers the family practitioner the autonomy of a private, primary care practice, plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges but without the distractions of OB or surgical responsibilities. Excellent salary and benefits. Please send CV to: Robert Peterson, Director, Regional Services, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449, or call collect at (715) 387-5498. *3-4/87

Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

Medical Practice Sales and Appraisals: We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice, contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, Pennsylvania 19004; (215) 667-8630. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Physicians Needed Over 400 opportunities nationwide!! Call (612) 786-1929 or send CV to: Earl Czech, North Central Staff Services, Inc., 4175 Lovell Road, Suite 108, Circle Pines, Minnesota 55014. 1-4/87

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Physician or General Internist needed for an established primary care clinic of four family physicians and a general surgeon. Guaranteed first-year salary with benefit program. Located in a small town on the beautiful north shore of Lake Superior (service area population of 12,000) only 22 miles from Duluth, which provides excellent referral and continuing education resources. Call collect: (218) 834-2171, or write: Steve Bjorum, Executive Director, Community Health Center, Inc., 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Family Physician to join group of six board certified family practitioners and one board certified general surgeon. Liberal vacation and educational allowances. $50,000 salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in Southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, Minnesota 56013; phone (507) 526-7371; personal phone (507) 526-3177. Marjeane Werner, Clinic Administrator; phone (507) 526-7371; personal phone (507) 854-3682. (R)

Emergency Medicine: Emergency physicians needed to staff clinic and hospital emergency room. Multispecialty group located in ideal area 90 minutes from Minneapolis/St. Paul, excellent schools, etc. 132-bed hospital has an active educational program including ACLS. Contact: Richard W. Golly, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. (R)

Arizona-based Physician Recruitment firm has opportunities coast to coast. "Professionals working with Professionals." Over 14 years' experience. Call: (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

Canterbury Inn Bed & Breakfast: Rochester's unique alternative to hotel living. Victorian charm with modern comforts. Private baths, fireplace, central air conditioning, gourmet or special diet breakfast anytime, "tea-time" (wine, hors d'oeuvres, etc.) daily. Private, off-street parking, three blocks to Mayo Clinic and St. Mary's. A very special place for you, your colleagues, and your patients while in Rochester. $50/single, $60/double. 723 Second Street SE, Rochester, Minnesota 55902; (507) 289-5553. (R)

Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, general internal medicine or with subspecialty training in ear/nose/throat, orthopedic surgery and obstetrics/gynecology. Bemidji Clinic is a 25-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or H.J. Hoody, M.D., Medical Director; (218) 751-1280. (R)

Wanted: Family Practitioner—Ob/Gyn Group practice, central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (755), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Practice, Internal Medicine, and General Surgery positions available at the Faribault Clinic. The Clinic is composed of eight family practitioners, two internists, and a general surgeon. Faribault is a community of 17,000 located 50 miles south of Minneapolis. Contact: Ken Smith, Administrator, Faribault Clinic, 924 NE First Street, Faribault, Minnesota 55021; (507) 334-3921. (R)

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's 13th largest lake. Good hunting and fishing. Modern 9-year-old hospital. Twenty miles to university campus. Call or write: Robert Bosl, M.D., Starbuck Clinic, PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Family Physician/Emergency Room: Full-time salary working weekends, primarily emergency room. Flexibility available. Falls Medical Center, PA, 105 Shorewood Drive, International Falls, Minnesota 56649. Please contact: Douglas A. Johnson, M.D., or A. Mare Gorden, M.D., at (218) 283-9431 for more information. (R)

Family Practitioner and General Internist to join 7-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

Suburban FP Group—SHARE affiliate—seeks associate to service rapid practice growth. Competitive salary and benefits. Unique opportunity to establish your practice. Contact: Gloria M. Vierling, Sundance Medical Clinics, Ltd., 323 Naumkeag Street, PO Box 9, Shakopee, Minnesota 55379; (612) 445-6440. (R)

For Sale—Family practice with or without clinic. County seat community. Excellent school, hospital, nursing home, nursing staff. Clinic—6 exam rooms, X-ray, lab, etc. Will finance and assist in

Motrin® 800 TABLETS mg
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Extra strength
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J-6138 January 1986

There's never been
a better time for her…
and
PREMARIN®
(Conjugated Estrogens Tablets)

Now the evidence looks better than ever

Significantly reduced risk of endometrial hyperplasia

Endometrial hyperplasia was significantly reduced when progestin was added to PREMARIN therapy for more than ten days a month.[1-4] The risk of endometrial hyperplasia may also be reduced through cyclic administration of unopposed, low-dose PREMARIN.

Effect on lipids—an important feature

PREMARIN used alone does not adversely affect lipid levels. In fact, a clinical study has shown a significant increase in HDL cholesterol—from 49.7 mg/dL to 56.4 mg/dL—and decrease in LDL cholesterol—from 165.1 mg/dL to 138.1 mg/dL—after one year of therapy with PREMARIN, 0.625 mg.[5]

Low-dose control of menopausal symptoms*

PREMARIN effectively relieves vasomotor symptoms, such as hot flashes. When estrogen deficiency is limited to atrophic vaginitis, PREMARIN® (conjugated estrogens) Vaginal Cream restores the vaginal environment to its premenopausal state.

The most widely used, most extensively studied estrogen worldwide.

PREMARIN®

(Conjugated Estrogens Tablets)

Most trusted for more reasons

*PREMARIN is indicated for moderate-to-severe vasomotor symptoms.

Please see following page for brief summary of prescribing information.

For moderate-to-severe vasomotor symptoms

PREMARIN®
(Conjugated Estrogens Tablets)

PREMARIN 0.3
PREMARIN 0.625
PREMARIN 0.9
PREMARIN 1.25
PREMARIN 2.5

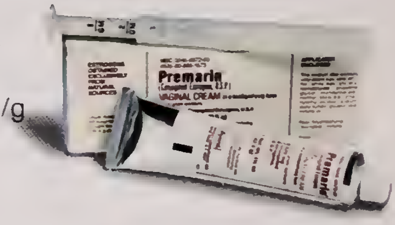
0.3 mg 0.625 mg 0.9 mg 1.25 mg 2.5 mg

The appearance of these tablets is a trademark of Ayerst Laboratories.

For atrophic vaginitis

PREMARIN®
(Conjugated Estrogens)

Vaginal
Cream
0.625mg/g



BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA

Three independent case control studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year This risk was independent of the other known risk factors for endometrial cancer These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case control studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13 9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible When prolonged treatment is medically indicated, the patient should be reassessed on at least a semiannual basis to determine the need for continued therapy Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen Close clinical surveillance of all women taking estrogens is important In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equiestrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY.

The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring It has been shown that females exposed in utero to diethylstilbestrol, a non-steroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix Although these changes are histologically benign, it is not known whether they are precursors of malignancy Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb reduction defects. One case control study estimated a 4 7-fold increased risk of limb reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 per 1,000 In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters Tablets are available in 0.3 mg, 0 625 mg, 0 9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens Cream is available as 0 625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) **Osteoporosis (abnormally low bone mass).** Atrophic vaginitis Kraurosis vulvae Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae. PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease 2 Known or suspected estrogen-dependent neoplasia 3 Known or suspected pregnancy (See Boxed Warning). 4. Undiagnosed abnormal genital bleeding 5. Active thrombophlebitis or thromboembolic disorders 6 A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. There are now reports that estrogens increase the risk of carcinoma of the endometrium in humans (See Boxed Warning.) At the present time there is no satisfactory evidence that estrogens given to postmenopausal women increase the risk of cancer of the breast, although a recent study has raised this possibility There is a need for caution in prescribing estrogens for women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use They should be used with caution in patients with cerebral vascular or coronary artery disease Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed Conditions influenced by fluid retention such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression Patients with a history of depression should be carefully observed. Preexisting uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a Increased sulfobromophthalein retention.

b Increased prothrombin and factors VII, VIII, IX, and X, decreased antithrombin 3; increased norepinephrine-induced platelet aggregability

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered

d. Impaired glucose tolerance.

e. Decreased pregnanediol excretion

f. Reduced response to metyrapone test.

g Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration. As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea; premenstrual-like syndrome; amenorrhea during and after treatment; increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion; cystitis-like syndrome; tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating; cholestatic jaundice; chloasma or melasma which may persist when drug is discontinued; erythema multiforme, erythema nodosum; hemorrhagic eruption; loss of scalp hair; hirsutism, steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea; increase or decrease in weight; reduced carbohydrate tolerance; aggravation of porphyria, edema; changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only.* For treatment of moderate to severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals

2 *Given cyclically:* Female castration. Osteoporosis. Female castration—1 25 mg daily, cyclically Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control. Osteoporosis —0 625 mg daily Administration should be cyclic (eg, three weeks on and one week off).

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only. For treatment of atrophic vaginitis or kraurosis vulvae

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three-to-six month intervals

Usual dosage range: 2 to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

References:

1. Whitehead MI, Townsend PT, Pryse-Davies J, et al: Effects of estrogens and progestins on the biochemistry and morphology of the postmenopausal endometrium. *N Engl J Med* 1981;305:1599-1605 **2.** Paterson MEL, Wade-Evans T, Sturdee DW, et al: Endometrial disease after treatment with oestrogens and progestogens in the climacteric. *Br Med J* 1980;280:822-824 **3.** Magos AL, Brincat M, Studd JWW, et al: Amenorrhea and endometrial atrophy with continuous oral estrogen and progestogen therapy in postmenopausal women. *Obstet Gynecol* 1985; 67. 496-499 **4.** Whitehead MI, Lane G, Siddle N, et al: Avoidance of endometrial hyperstimulation in estrogen-treated postmenopausal women. *Semin Reprod Endocrinol* 1983,1.1;41-52 **5.** Barnes RB, Roy S, Lobo RA. Comparison of lipid and androgen levels after conjugated estrogen or depo-medroxyprogesterone acetate treatment in postmenopausal women *Obstet Gynecol* 1985;66:216-219

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establishing new M.D. Contact: H.A. Knoche, M.D., Gaylord Clinic, Ltd., 315 4th Street, Box 267, Gaylord, Minnesota 55334; (612) 237-2528. 6-4/87

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Excellent Opportunities for Otorhinolaryngologist, Psychiatrist, Endocrinologist, Radiologist, Orthopedist, Dermatologist and General/Family Practitioner. Excellent opportunity for physicians in Los Angeles suburb to join 80-member multispecialty medical group. Large fee-for-service and prepaid practice, no Medi-Cal. Excellent compensation program based on guarantee plus incentive, profit sharing, and pension plan. Group provides health, dental, life, and malpractice. Partnership in real estate and medical corporation available. See our display ad in this publication. Send CV to: Wm. Shaw, Associate Administrator, Mullikin Medical Center, 17821 South Pioneer Boulevard, Artesia, California 90701. 4-5/87

Board Certified Internist, Oncologist, or Gastroenteriologist (willing to do General Internal Medicine) to join expanding group of Internists with offices in downtown Minneapolis and western suburb. Excellent benefits and earning potential. Opportunity to work with young academically motivated group. Please contact: Dr. R.W. Kaufman or Dr. J.P. Kieley; (612) 339-7171. (R)

Family Practice BC/BE for multispecialty clinic of 16 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, pathology, and radiology. Other specialties in town are ophthalmology and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy among Kraft, 3M, Pantasote, AMPI, and agri businesses. Three excellent school systems in addition to a college. Contact: Harold Fenske at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota; (507) 354-4101. 4-4/87

Internal Medicine BC/BE for multispecialty clinic of 16 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, pathology, and radiology. Other specialties in town are opthalmology and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy between Kraft, 3M, Pantasote, AMPI, and agri businesses. Three excellent school systems in addition to a college. Contact: Harold Fenske at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota; (507) 354-4101. 4-6/87

BE/BC Family Practice, Internal Medicine, OB/GYN & Psychiatrist: Excellent opportunity to join a well-established, progressive, 15-physician multispecialty group (7 FP, 4 IM, 2 GS, 1 OB/GYN, 1 DERM) located in an economically sound community of 19,000 (drawing area of 30,000), 65 miles south of Twin Cities. Full membership after one year. One FP retiring in 1987. Competitive salary and fringe benefit package. Contact: Pat Greenwood, M.D., or Jim Wilkus, Administrator, 134 Southview, Owatonna, Minnesota 55060; (507) 451-1120. (R)

Urologist Physician Board Certified/Board Eligible to join 24-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

Internal Medicine Physician Board Certified/Board Eligible to join 24-physician multispecialty group in Winona, Minnesota, with existing 9-physician internal medicine department. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

Orthopedic Surgeon Board Certified/Board Eligible to join an existing one-physician orthopedic department in a 24-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

Internists subspecialty interest helpful, 2 Family Practitioners BE/BC *needed immediately* to join a medical group based in Fargo, North Dakota. Guaranteed salary plus incentive bonus first year, partnership thereafter. Excellent package of fringe benefits. Call or write: A.J. Dietz, M.D., 2601 North University Drive, Fargo, North Dakota 58102; (701) 293-8984. 5-7/87

Attractive New Office in Golden Valley near Hwys 55 and 100 available for sublease 1½ days a week or more, depending on type of practice. Fully equipped lab and procedure room, 3 exam rooms, large waiting room with balconies leading to adjacent pond. Currently occupied by solo OB-GYN. (612) 544-9935. (R)

Family Practice: Chisago Health Services is seeking two family practice, board eligible/certified, physicians to join its 13-member physician group. Working together, we operate medical centers in Chisago City, Wyoming, and North Branch and also Chisago Lakes Hospital. Guaranteed first-year salary with excellent benefits. The Chisago Lakes area offers excellent living with convenient access to Minneapolis/St. Paul only 30 miles away. Send CV to or contact: Peter H. Overgaard, M.D., Medical Director, Chisago Lakes Medical Center, 11685 Lake Boulevard North, Chisago City, Minnesota 55013; (612) 257-2500 or 462-1514, metro. 3-5/87

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The Duluth Clinic, Ltd., a 130-physician multispecialty comprehensive regional medical center is actively seeking general internists. State of the art diagnostic equipment, surgical and hospital facilities are available.

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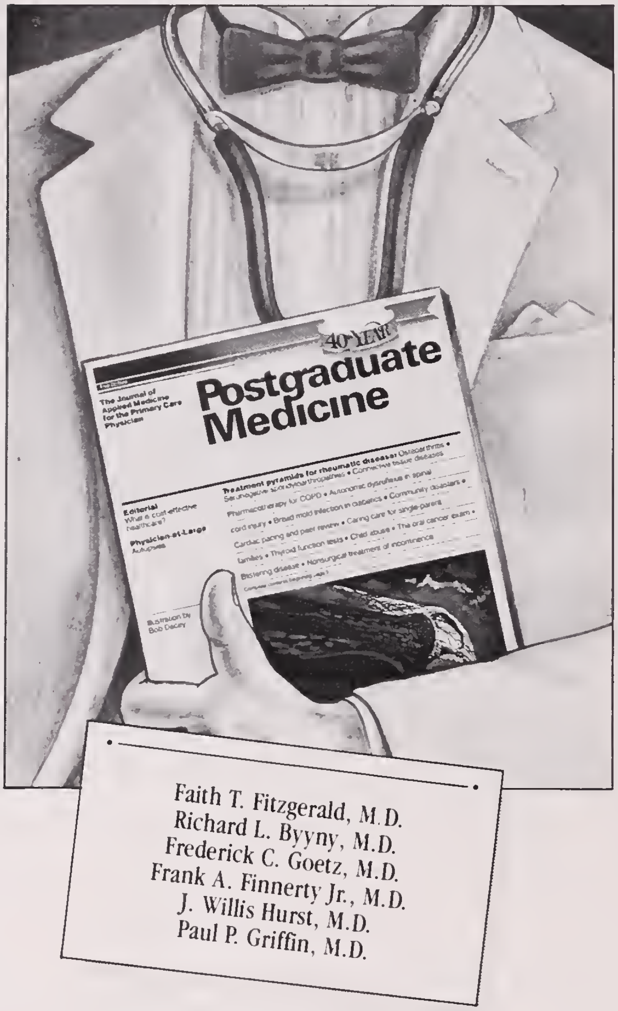

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Family Practice Physician, Pediatrician, and OB/GYN—St. Cloud: BE/BC to join supportive primary care staff in successful and innovative staff-model HMO. New clinic facility. Full range of fringe benefits (competitive salary, liberal vacation, two weeks education leave, retirement fund, etc.) Must be sensitive to women's issues. Contact: Dr. Gary Strandemo, Central Minnesota Group Health Plan, 1245 15th Street North, St. Cloud, Minnesota 56301; (612) 253-5220. EOE. 5-7/87

Family Practice Physician wanted to join a busy 19-physician multispecialty primary care clinic located across from North Memorial Medical Center, a progressive modern hospital in Robbinsdale, Minnesota. Top salary and benefit package. Three contemporary offices. Please contact: Dan Noonan, M.D., at North Clinic, 3366 Oakdale Avenue North, Robbinsdale, Minnesota 55422; (612) 588-4625. 2-4/87

Attention Physicians: Mount Sinai Hospital in Minneapolis, Minnesota, currently has several openings for part-time positions in the Emergency Room. Interested physicians should contact Karen DeGrio, Mount Sinai Hospital, 2215 Park Avenue South, Minneapolis, Minnesota 55404; (612) 872-5735. 2-4/87

Downtown Office Space For Rent. Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553. (R)

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Family Practice in St. Croix River Valley: Family practice group seeking BE/BC for full range of family medicine. Good specialty support, progressive community hospital, diverse patient population. Opportunity for country living with 20-minute access to Twin Cities. Guaranteed salary and benefits plus incentive plan. Call Dr. Bob Stoy (612) 436-7860. 2-5/87

Pediatrician: The St. Cloud Medical Group, a multispecialty physician group, is seeking an additional full-time board eligible and/or board certified pediatrician to share call in a practice with three other pediatricians. The Pediatric Department is very busy and has many referrals from a large family practice department and obstetrical department. The organization is a very progressive and growing medical force in central Minnesota and offers the new pediatrician and his or her family a quality opportunity. The facility has two affiliate branches that also assist the referral network for the Department of Pediatrics. St. Cloud, with a population of 70,000, is one of the fastest growing communities in Minnesota. It is home to three major colleges and provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in joining a progressive and growing medical group in central Minnesota that offers a quality compensation program along with fringe benefits, please contact Dr. Richard Hart and/or Daryl G. Mathews, Administrator, collect at (612) 251-8181, or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-7/87

Urgi-Care Physician: The St. Cloud Medical Group, a multispecialty physician group, is recruiting an Urgi-Care physician in St. Cloud, Minnesota. The physician must be board certified and/or eligible in family practice and/or emergency medicine. The individual recruited into this position will not be required to take any evening or weekend call and will receive the benefits of association with one of the largest groups in central Minnesota. St. Cloud, with a population of 70,000 is one of the fastest growing communities in central Minnesota, and is home to three major colleges. St. Cloud's location provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in becoming an Urgi-Care physician in a progressive and growing medical group in St. Cloud, Minnesota, please contact either Dr. LaRue Dahlquist, President, or Daryl G. Mathews, Administrator, collect at (612) 251-8181, and/or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-7/87

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Pilot City Health Center, a multispecialty community health center in the near north side of Minneapolis, has a current opening for a .7 FTE position for a Board-Certified internist or family physician. Broad patient base. Competitive salary. Regular hours. Professional fellowship. Call: Dr. Martha Anderson, Medical Director, (612) 348-4600. 2-5/87

Emergency Medicine: Central Minnesota Trauma Center seeking full-time BE/BC EM physician to join group of EM boarded physicians. Competative salary and excellent fringe benefit package. For further information contact: David L. Frederickson, M.D., Chief, Dept of Emergency Medicine, St. Cloud Hospital, 1406 6th Avenue North, St. Cloud, Minnesota 56301 or call (612) 255-5657. 3-6/87

Family Practice Physicians Assistant: NCCPA certified desires to join established clinic. Present duties include family practice, pediatrics, GYN, orthopedic fracture care, and minor surgery. Experience in manning satellite clinic. New Minnesota legislation allows greater versatility of PA-Cs. CV on request. Contact: Mark Shoemaker, PA-C, (218) 741-4292, or (218) 225-3493 (after 6 p.m.) 2-5/87

Pediatrician: Practice opportunity for BE/BC pediatrician in a warm and friendly community in eastern South Carolina, North Myrtle Beach vicinity. Ideal recreational opportunities including the beach, sailing, fishing, tennis, and golf. The pediatric practice is very well established. Excellent financial package from hospital—a 105-bed modern hospital with a 40-bed extended care facility. Contact: Alton Ewing, Assistant Administrator, Loris Community Hospital, Loris, South Carolina 29569; (803) 756-4011. 1-4/87

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 6-9/87

Occupational Medicine: Minneapolis — BC/BE Occupational Medicine Specialist needed to join three-person occupational medicine department of 270-physician multispecialty medical clinic in desirable Twin Cities area. One to two years experience preferred. The Clinic serves both fee-for-service and prepaid (HMO) patients. Salary and benefits are highly competitive. Send CV and letters of inquiry to: John Dunne, M.D., Park Nicollet Medical Center, 5000 West 39th Street, St. Louis Park, Minnesota 55416. 1-4/87

Wisconsin: located on the scenic Wisconsin River. Full-time emergency position available with an established department that has growing volume ED visits. Independent contractual relationship. Flexible scheduling with annual compensation between 100k-115k. Previous ED experience with pediatric background desired. Write or call collect: Jean Malkasian, Fox Hill Associates, 250 Regency Court, Waukesha, Wisconsin 53186; (414) 785-6500. 1-4/87

Pediatrics — Southeastern Wisconsin: Large multispecialty group located near Milwaukee is seeking a fourth BE/BC pediatrician. Competitive salary, excellent fringe benefits. Address inquires and CV to: Administrator, PO Box 427, Menomonee Falls, Wisconsin 53051. 2-5/97

Orthopedic Surgeon: BC/BE to join me in my solo private practice of orthopedic surgery in Virginia and Hibbing, Minnesota. First-year salary would be competitive with incentive benefits and early partnership. Contact: Jay A. Davenport, M.D., Orthopedic Ltd., Northland Office Center, PO Box 943, 307 1st Street South, Virginia, Minnesota 55792 and talk to Dr. Davenport or Ron Egge for further details; (218) 749-2004. 1-4/87

Family Physician needed, busy practice Anoka, Minnesota. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 1-4/87

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Position available July 1, 1987. Please send resume by April 30, 1987, to Donald Severson, M.D., Chair, Physician Search Committee, University of Minnesota, Boynton Health Service, 410 Church Street SE, Minneapolis, Minnesota 55455. For further information, call Dr. Severson at (612) 624-2933.

The University of Minnesota is an equal opportunity educator and employer and specifically invites and encourages applications from women and minorities. 1-4/87

Staff Psychiatrist, Duluth: Position now available in community mental health center. Join seasoned multidiscipline staff providing variety of child adult services. Share coverage with one other psychiatrist. Good salary and benefit package. Excellent working conditions and environment. Contact: Director, Human Development Center, 1401 East First Street, Duluth, Minnesota 55805; (218) 728-4491. 2-5/87

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Orphaned fawn

Frances E. Schaar, M.D., took the cover photograph many years ago just north of Ely, Minnesota, near the Whispering Pines Lodge using a Leica M3 camera.

Dr. Schaar, a retired pediatrician, is a member of the Minnesota Nature Camera Club, the Women's Color Photo Club of Minnesota, and two Audubon clubs and has taken many cover photographs for *Minnesota Medicine*.

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from the editor

The Board of Trustees of the Minnesota Medical Association has recommended that the format of Minnesota Medicine be changed from a concentration of clinical and scientific matters to a focus on governmental, social, and competitive factors that affect physicians. Effective immediately, the Board of Editors will no longer accept research papers on clinical or scientific subjects. In the future, we will solicit such papers on specific issues. The transition to the new format will be gradual because we have a backlog of papers that we have already accepted and scheduled for publication. We will honor these obligations. We expect to complete the transition to the 'new' Minnesota Medicine by the early part of 1988.

We regard this a major opportunity to shift from constraints of the past to potentials of the future and to convert Minnesota Medicine into a higher quality journal with a wider and more diverse readership.

Richard L. Reece, M.D.

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editor's notebook

Interview with Dr. James Knapp, President of the Minnesota Medical Association

REECE: You've been president of the Minnesota Medical Association for a year now, and your term is just ending. It seems to me that *Minnesota Medicine* is a proper vehicle for communicating your views to the physicians of Minnesota, and I hope to make this presidential interview an annual event. I would like you to summarize what you've learned, what you've thought of your year, and what you see for the future. What were your goals when you started as president a year ago?

KNAPP: I wanted to be the best communicator the association had ever had. The president is the chief spokesperson for the medical association, and it was my intent to be a good communicator, not necessarily a "Great Communicator" — that term has fallen into disrepute.

REECE: What do you regard as the significant events of the past year?

KNAPP: I will list some highlights. Probably foremost is the hiring of our new chief executive officer, Steve Carter, who has the potential to be the best CEO the association has had. Other highlights were meetings that I participated in with Sen. Dave Durenberger. Third is the rural health initiative that we've engaged in as an association. The fourth area is our ongoing liaison with the state government and with the University of Minnesota. And fifth is my work on the presidential letters in *Minnesota Medicine*. It's an education to develop a topic, present it informatively, and reduce it to a page. That's probably been the most difficult thing that I've had to do. It's not easy to be the *point* person. I've had to work at that.

REECE: What have you learned from exchanges with Sen. Durenberger about how he views the United States' health care system in general and Minnesota's in particular?

KNAPP: Sen. Durenberger views Minnesota as an initiator of what needs to be done in health care. He sees Minnesota as a cauldron of activity where ideas about health care are boiling. He has said several times that Minnesota recognizes its problems and deals with them better than other parts of the country. We're receptive to ideas and receptive to change. We recognize that change is necessary because the federal government is not going to be able finance health care at the level it has in the past. The government has to find a way to transplant health care financing from the federal level back to the state level or even to the local level.

Sen. Durenberger is convinced that there will be dollar rollbacks and that a more efficient system has to be developed. He doesn't offer any magic ideas about how this will take place, but Minnesota is moving more rapidly toward capitation than some other parts of the country.

Richard L. Reece, M.D.

REECE: Sen. Durenberger favors a marketplace solution. Unfortunately, the marketplace has ragged edges: namely, 40 million people falling through the cracks and neglect of teaching institutions. What are his attitudes toward those issues?

KNAPP: I think he's firmly committed to the marketplace, but he's using new phrases that describe the consequences. One is the "law of big numbers." When you deregulate systems, large numbers or concentrations of people dictate how the system will work, but small segments of the system fall through the cracks.

One of his greatest concerns, at least as I've observed, has to do with rural health. He seems convinced that the marketplace does not work well in rural Minnesota with respect to health care. If you let the marketplace work there, *totally* work there, you will decrease access, you will close hospitals, you will force doctors to move out of small communities, you will increase travel distance, and you will reduce quality of care. You may have to make exceptions to the marketplace theory for rural settings. He has presented a rural health bill that would offer financial incentives for small rural hospitals under great financial stress. It would help them change their role. Some small hospitals may have to get out of the business. But even if a small hospital is not needed anymore, it's still difficult for it to close because citizens of the town depend on it.

Opportunities for Change

REECE: You said in the February President's Letter that changes that affected you personally, namely two regional mergers, had benefited you. These mergers not only increased your income but made you a more effective physician with more resources at your disposal. The letter was optimistic. You said you regard regionalization and concentration of resources as beneficial.

KNAPP: There are two prevailing medical attitudes today. One is great optimism that all this change can be used to our advantage — doctors will come out on top, doing better for their patients and perhaps better personally. The other attitude is one of strict pessimism — the physician's lot is deteriorating, is near disaster; it's the worst of all possible times; it's all down hill.

REECE: Well put. Bursts of boom with long stretches of doom and gloom.

KNAPP: I was trying to communicate in that article that changes are going to occur. These are opportunities that we simply have to take advantage of. One of the opportunities is to become more efficient. One way to do that is to become bigger, and you can become bigger by merging.

Our small clinic approached the large clinics in Fargo to see if they were receptive to a merger. One said sure, fine, we'll think about it, and we'll get back to you. The other said fine, when do you want to do it? They saw the opportunity, and they moved ahead with it. The pressures were on us locally, and we decided to respond to these pressures in the only way we knew how.

REECE: You anticipated a trend toward regional mergers?

KNAPP: Yes, and it's worked out very well. Ten years from now we'll be able to say whether it was the right or wrong choice. Under the circumstances, we decided that was the best option, and we moved ahead with it. That's what doctors around the state will all have to do. They've got to analyze their practices, they've got to decide what's wrong with them, what's right with them, and they've got to make whatever changes are necessary to make them better.

REECE: Until now the HMO has been largely considered an urban animal. It is prowling and foraging in the hinterlands. Is the HMO component of your practice growing rapidly?

KNAPP: Yes, particularly the Medicare component. In our Dakota Clinic practice, we now have over 6,000 Medicare patients signed up through Medicare and More HMO. The HMO for the rest of the population is growing slowly, and I'm not sure it's even viable. We don't have enough industry to solicit for HMO patients.

It's the senior HMO that has really taken off. There are advantages and disadvantages to this. In these HMOs, we may be providing a higher level of care for these people. We are doing more preventive care and more screening. We're finding things earlier in our seniors. On the other hand, it's obvious to me that the Medicare HMO is an underfunded program. I don't know whether we'll be able to participate in it in years to come.

Rural Medicine

REECE: Do you think the MMA's rural health initiative will have positive results?

KNAPP: First, the initiative was a fact-finding effort. It proved to me that the medical situation is deteriorating in some rural areas. The initiative also provided us with a vehicle to recommend changes that will allow the rural segment of our state to work through this painful transition. The initiative has given us the evidence to show the Legislature and Congress that things are bad. It has given visibility to a grave problem. For the first time in a long time, we have shown our rural doctors that the MMA does pay attention to what's happening in their areas. For too long, the MMA has disregarded rural Minnesota.

REECE: In your July 1986 letter you made two comments: 1) Minnesota has a two-tiered economy with the rural areas in the lower tier, and 2) rural Minnesota and its health care workers will not be able to work through their problems without assistance.

KNAPP: That's true. I don't see the economy getting better in rural Minnesota for some time. But people will still live there, and they will still need health care. How will we provide that care? People who can't afford to pay for care will need support from somewhere else. I don't like to use the word subsidy, but that's what it amounts to. Our rural citizens need financial assistance until they can restore their economy or move elsewhere.

REECE: What form would that financial assistance take?

KNAPP: It might be tax considerations. It might be aid to help change rural hospitals so they can function differently. It would certainly have to be economic aid. A recent survey of our rural membership indicated that physicians want to take care of their Medicaid patients, but they're already subsidizing the program by taking care of those who can't pay. We need to pay physicians more, not less, for caring for Medicare patients in rural areas. We're going to need something to keep doctors out there.

REECE: The Durenberger bill proposes providing grants to assist rural hospitals in modifying their service mixes to meet new community needs. What does that mean?

KNAPP: Rural hospitals have to find new ways to serve their communities.

REECE: To diversify?

KNAPP: Perhaps. Hospitals may get as much as $50 thousand in a grant. They will have to offer something genuinely needed by the community.

Working with the Legislature

REECE: What is your attitude toward Gov. Perpich's proposal to tax nonprofit institutions? I've heard many people, including Dr. Eugene Mayberry of Mayo Clinic, pointedly say that this proposal would be a disaster.

KNAPP: Not only does the governor want to tax those kinds of institutions, but he's also talking about a tax on nonprofit health insurers. These taxes represent a desperate effort to find new sources of revenue without raising taxes directly to the public.

I agree with Dr. Mayberry that it will produce a disaster because these institutions will have to pass this tax on to the public. The idea behind this tax move is that the nonprofits accumulate large cash reserves. Some legislators believe that health care organizations stockpile this money for non-public gain. But nonprofits do have to pay that money back into the economy, and the amount of reserves is closely regulated.

REECE: In your initial remarks, you said one of the highlights of your year was your interaction with the legislature. Are we in a new era in dealing with the legislature?

KNAPP: There is a new openness in government in terms of listening. That hasn't always been the case, but given the present complexion of the legislature, I'd be surprised if it will do much to directly assist medical doctors.

. . . and the University

REECE: What about the relationship of the MMA with the University of Minnesota medical center?

KNAPP: It has improved. We're beginning to exchange information at all levels, not just at the upper levels. Mutual understanding will continue to improve with Bill Jacott in Neal Vanselow's Office of the Vice President for Health Sciences, at the university. Bill is as knowledgeable as anybody about medical association attitudes, programs, and philosophy.

REECE: Of late, the university has discovered that it must compete. A big part of its referral base is rural Minnesota. It strikes me that the university is taking some steps to send out representatives to the rural areas and to encourage graduates to practice in greater Minnesota.

KNAPP: That's right. It's been true for several years. Some of our larger outlying clinics have been upset with the university's outreach. They've been vocal about it, and they've said that it's unfair competition. But the university also needs to compete for patients. The university operates with different ground rules than we do, and we feel at a disadvantage competing with them. Still, we're finding better ways to work together. It's part of a new era. I'm not sure how it's going to work out. Frankly, we have several large players in Minnesota that have a stake in this. The university is one, the other large clinics are another, and the smaller clinics are yet another.

The MMA in a Competitive Market

REECE: As you well know, angry clashes have flared in the Twin Cities between HMOs and physicians. What is the MMA's position on this?

KNAPP: The MMA thus far has been an interested bystander, an information source, and a frustrated player. The MMA leadership knows what is happening, but we have left ourselves out of it, not quite knowing what role to play. There's movement to develop a bargaining structure for physicians so they can negotiate as a group with the plans. There's a move to create an IPA, perhaps a county medical society IPA that would take a share of the business so doctors would regain some control. That concept could be taken statewide. The point is that MMA is frustrated by all of this activity. We're not sure what role we should have played in the past, but we will be playing a role in the future.

REECE: Speaking of the future, what do you think about the future viability of organized medicine in the competitive environment? Are you optimistic? Is your membership growing? Tell us the economic realities of the Minnesota Medical Association.

KNAPP: Our membership is growing. Our budget is growing, but that isn't to say that growth is a guarantee for the future. We will have to decide what the MMA's role will be for the next two, five, and ten years. We need to decide how we're going to spend our money, who we'll be representing, and to whom we'll do the representing. We need to take a hard look at economic issues because the economy will dictate the answers.

REECE: Let's put the association's economics in perspective compared with other health care organizations. MMA's budget is what, $2.5 million, and you're competing with organizations like the Mayo

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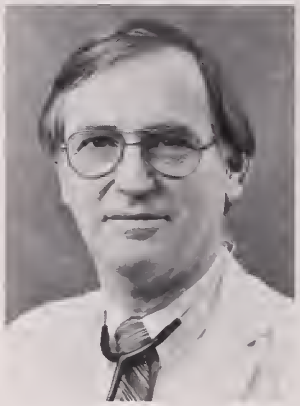

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KNAPP: Absolutely. It amazes me that we spend so little money and achieve so much. What we spend is credibility, and credibility of our organization depends on having a broad membership so we can say we're representative of the doctors of Minnesota. Anyway, we're not in competition with these other health care organizations and their tremendous budgets. We expect our work to enhance their goals as well as our own. By the way, we're pleased the Mayo Clinic has decided to become more active in the MMA by purchasing membership for all Mayo doctors.

When we have 100% membership from an organization like Mayo it will be easier for us to talk to clinics that are going the other direction, and say look, Mayo thinks it needs to be involved with us. Maybe you need to be involved too. Of course, that takes us back to the critical question of representation.

REECE: If you're an umbrella organization representing large clinics, independent practitioners, health maintenance organization physicians, and the university, a form of paralysis can set in. You become a muscle-bound giant, incapable of representing any single group.

KNAPP: That's right. It's clearly a dilemma. The same problem faces the AMA. The AMA decided ten years ago to become a big umbrella organization. But if you represent everybody and everybody's interest, you neutralize it all. That's a risk we have to come to grips with. We have to decide where medicine is going.

Negotiating for the Future

REECE: Where is medicine going?

KNAPP: Personally, I don't believe the economy is going to get that much better. We haven't elected people to Congress or to the Presidency in recent years who are willing to accept the idea that we must pay for our debts. Our economy will probably dawdle along at best. Maybe we'll see recession. Because of this, the medical association is going to be forced to become an organization that helps its members be more efficient in the delivery of care with scaled down dollars.

REECE: Do you think that the days are gone when a medical organization can represent just fee-for-service physicians?

KNAPP: We have not represented strictly fee-for-service for a long time in Minnesota. Minnesota has grasped the idea that managed care systems are the current movement in this state. That isn't to say that the leadership of organized medicine has bought that notion; the AMA leadership is still committed to fee-for-service, but the realities aren't in that direction. While most doctors and I personally favor fee-for-service as the best payment mechanism, we have to deal with the realities of the current system. Until doctors become the insurers, it's not likely we'll be able to return to a strict fee-for-service system.

REECE: In a recent speech in Florida before a national association of health benefit officers, Dr. Dick Frey made the comment that we'd gone from arrogance of the provider to the arrogance of the buyer. That's a memorable comment to me because part of the function of the Minnesota Medical Association may be to strike the balance between these forms of arrogance.

KNAPP: We may have to become a negotiating arm or at least an informational arm that tells physicians how to negotiate. We've begun to do that over the last five years. Big operations negotiate from power, so doctors have to find ways to negotiate from power also. Unfortunately, there's only power in numbers as far as I can tell.

REECE: The law of large numbers again?

KNAPP: The law of large numbers. There's no power in principles when it comes to negotiating.

REECE: What are some of the important external issues the medical association is going to have to address?

KNAPP: We need more doctors in the legislature, probably in Congress, if we could arrange it. Those are the rulemakers, and we have to be involved even more intimately in rulemaking. We have to maintain access to health care for all of our citizens. Rural health is really in jeopardy right now. We have to address the third-party discounting and financing cutbacks, third-party discounting from insurance companies, and the financing cutbacks from the federal government.

We have to address mental health with more medical doctor involvement. We've got to deal with data collection, outcome analysis, and quality measurements. We've got to convince people that they must become really smart buyers of health care. We also have to address the physician surplus. We have to make some real recommendations, not just wring our hands about it. We want to be sure that we're spending time on the right problems. We need strategic planning and budgeting of our limited resources.

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president's letter

What Goes Around Comes Around

One of the major responsibilities of the MMA president is to write the monthly President's Letter that appears in our state journal. The challenge is to cover timely topics in a brief and informative way. For hints, I've reviewed most of the letters and editorials by our presidents dating back to the re-establishment of the state medical society in 1869.

Several recurring problems stand out in these materials, including medical ethics and standards, quality of care, medical education and scientific advancement, quackery, promotion of the public health, professional liability, government regulation, third-party payers and payment mechanisms, and relations between medical doctors, the public, and elected officials.

There is not enough space in this letter to review what has been said about these subjects over the years, but I would like to review one persistent issue—the supply of medical doctors, which has been a subject of MMA presidential statements since the founding of the society.

1869 — Society Committee Report

This committee reported that there were 120 regular physicians and 93 irregular practitioners practicing in this state in 1869. *Regular* physicians had received a medical education through a recognized medical school and had served a preceptorship. *Irregular* physicians were the product of diploma mills or were self-designated physicians. Quackery and inappropriate competition became issues of concern. Legislation regulating the practice of medicine with licensing through the medical association was passed, but in 1872 this legislation was considered inadequate because it offered no penalties for those declared irregulars. In 1872, the society began creating a Board of Medical Examiners with the intent of establishing standards in education and inducing Minnesota into the formal education of medical students.

1894 — W. J. Mayo, M.D., Presidential Address

"With the public at large, as our theories have become replaced by scientific knowledge and demonstrated facts, our place in the community has correspondingly advanced. The promulgation of the modern doctrines of public health and graduate education of the people in the rudimentary elements of biology have enabled the masses to judge the regular profession from a new standpoint and constantly increases the esteem in which the profession is held by giving a basis of comparison between medicine as a science and the various systems which claim public notice. In this age, mere assertion will not hold its own and the doom of the pathies lies in the education of the people. Let us have the patience of a righteous cause and await this slow but sure process. It is humiliating to members of our profession to see so many positions of public trust held by irregular practitioners and often by common charlatans but we must recollect that the world is not run by the highest thought but by the average intelligence and the right of the minority to representation is but justice. Common sense should teach us that in the division of the positions which medical men naturally fill a just proportion should be cheerfully granted to irregular medicine and we should welcome rather than oppose a comparison. Under the law of supply and demand we must conclude that about 12% of the United States patronize unscientific medicine and as taxpayers they have the right to representation and by opposition we only martyr them into the notoriety they crave."

James F. Knapp, M.D.

1907 — St. Paul Medical Journal Editorial

"It is almost a foregone conclusion that the next century, possibly the present century, will witness the practical extinction of all those diseases which are caused by microbic invasion of the human organism . . . . With few cases of disease, there is less demand for the services of the physician, and, oddly enough, at the same time, physicians have grown more numerous in all communities and the competition is daily becoming keener. Other factors which combine to make the physician's struggle for existence more and more discouraging are the multiplication of schemes of contract practice, the discriminate abuse of medical charity, the multiplication of fraudulent methods of treatment and devices for imposing upon the credulity of people, all of which tend to make it harder for the physician to earn a living and this, too, in the face of the rapidly increasing cost of all of the necessities of life. Plainly we have too many physicians now, and at the present rate of increase, the time will come when the vast majority of them will be unable to earn a living, and there will be the ever increasing temptation for many to depart from the straight and narrow path and stoop to dishonest methods. There will never, of course, come a time when physicians will not be needed in all civilized communities, but if we are to approximate the ideal conditions we must have fewer physicians than at present and these must be more highly educated. To bring about these conditions and to relieve the present congestion of the medical profession, we must look to those who have charge of matters of medical education. We look forward to the time, and we believe that it is not far distant, when an academic degree will be required for admission to all medical schools and when the medical school course will be lengthened to six years with at least one additional year for postgraduate and hospital work. There is no question but that this would result in fewer and far better physicians, and that the standard of the medical profession would be much higher than it is today."

1927 — William F. Braasch, M.D., Presidential Address

"The most important, as well as the most spectacular, achievement was the passage of the Basic Science Bill. If this Association never does anything else, it will have justified its existence in bringing this about. It is not so much any direct benefit, either economical or professional, which may derive from this measure, that appeals to us, as it is the fact that the public has recognized that certain fundamental qualifications are necessary to the practice of healing. This principle has never received public recognition and it will go a long way towards the establishment of universal confidence in the ideals of the medical profession. The recognition of the merits of this measure since its passage by editors, legislators, and numerous intelligent layment, has been most gratifying. It is realized that in this measure organized medicine endeavored to safeguard the welfare of the public rather than further its own interests."

April 1928 — C. B. Wright, M.D., President's Letter

"Is there a danger of a scarcity of doctors? Second, are doctors concentrating in the cities to such a degree that the country districts are being deprived of necessary medical service? Dr. Pusey and others have repeatedly called attention to the fact that the number of medical graduates has decreased in the last 13 years both actually and relatively. This is due to a decrease in the number of medical schools and to a limiting of the size of the entering classes at a time when the population has been markedly on the increase. This sounds serious; on the other hand—do we need as many? It is a fairly general opinion among medical men in the Twin Cities that the profession is overmanned; the doctors in the small towns I have discussed this question with have all expressed the opinion that there are more doctors in the country than can make a fair living, the general economic situation of course, has an important bearing on the physicians' incomes as on other incomes. There is no doubt that the automobile, the telephone and improved roads have greatly increased the range of practice and eliminated the great waste of time and transportation. In addition to this, typhoid fever is gone, diphtheria is now treated by giving toxin and antitoxin in the first year of life, scarlet fever is going, cholera morbis and infantile scurvy have gone, 70% of confinements are in centrally located hospitals."

July 1933 — N. O. Pearce, M.D., President's Letter

"During the next few months, large numbers of young people will determine on which business or professional career they will prepare themselves for at the University. Undoubtedly many of them, contemplating the study of medicine, will consult the family physician, and no more kindly advice could be given a young man or woman aspiring to the practice of medicine as a career than to point out the already overcrowded condition of the profession. It is our duty to these young people who may depend upon us for advice, and it is our duty to the profession itself, and to the public, to discourage young people from embarking upon a professional career in a field which is far from being able to support the number of highly trained people already depending upon it for a livelihood."

March 1943 — Stephen H. Baxter, M.D., President's Letter

"Seductive arguments are put forth favoring the lowering of educational standards in order to hasten the graduation of a larger number of medical students. Sympathies of legislators and governmental officials are played upon, to induce them to relax the restrictions on the practice of medicine, and to practitioners whose qualifications are questionable or unknown to practice under a 'temporary license.' A wise man once said, that there is nothing more permanent than a temporary expedient. Men are prone to follow the line of least resistance and to permit the temporary expedient to become permanent policy rather than to fight to abolish it. Reducing the quality of service, lowering standards of education, and relaxing the laws governing qualifications and the licensure of practitioners would be simply playing into the hands of charlatans and incompetents and worse, and cannot be justified on the grounds of temporary necessity or expediency."

May 1962 — Haddan M. Carryer, M.D., President's Letter

"Future needs in the United States for well trained physicians will be great. Projections of current rates of increase in our population suggest that this is so. Moreover, the changing complexity of medicine necessitates greater numbers of personnel, if all the benefits of our current knowledge in the diagnosis and treatment of disease are to be exploited to the utmost. More people are seeking medical care; this is good. Our older people require greater medical attention, yet the very fact that we have so many old people in good health is in part a tribute to medical science . . . Provision of enough physicians to satisfy the expanding demand has caused much concern to physicians, educators, and the public alike. Each of the 87 medical schools in this country has reviewed its facilities for training medical students and has expanded these where possible. Plans are now being made for five additional medical schools in established universities. The feasibility of organizing additional medical schools in several other areas, including at least one in our own state, is under active consideration . . . . The number of applicants for entrance into medical schools in the United States has decreased since the post-World War II years. The sole exception to the trend was a flurry of interest after the Korean conflict. Applicants for entrance into medical schools had decreased in 1960 to 14,397, a figure about two-thirds of the number for the corresponding group a decade earlier, but 1.7 applicants for each opening by 1960."

March 1967 — C. G. Sheppard, M.D., President's Letter

"With the dwindling supply of physicians in rural America, Dr. Peterson urged that we should consider doing what most of the European countries have done, namely, make much more use of paramedical personnel for as many services as possible, in order to free physicians for more technical work. Among those suggested was an almost vanished person, at least in this area, the 'midwife.' "

Olser L. Peterson, M.D., of Harvard University: "Recently, there has been a spate of studies and reports such as the Millis Report, the Health Manpower for Upper Midwest Report, and several other well known studies on the same subject. All of them, without exception, has stressed the fact that there is a crucial need for not only more physicians, but especially more family physicians . . . . It is true that the ratio of physicians to population has increased over the past 20 years, but fewer doctors are going into private practice and more into research in other branches of medicine, which all adds up to a shortage of general practitioners."

February 1968 — Edward W. Ciriacy, M.D., President, Minnesota Academy of General Practice, President's Letter

"We have seen, in the last quarter of a century, the dwindling number of solo practitioners and the extensive development of group practices. We have become aware of the decreasing number of small town physicians and the tendency of physicians to congregate in larger communities . . . . More attention must be paid to the delivery of medical care. Included in these studies would be not only the development of more efficient ways to adequately take care of more patients per physician, but also the methods by which physician services could be made available to certain areas which consistently have inadequate physician coverage."

May 1971 — Robert T. Kelly, M.D., President's Letter

"Health manpower distribution is another serious problem for our state. The University of Minnesota Medical School has increased its enrollment by approximately 65 students for each new class. Curriculum programs for training these students have been changed, drastically, but will not be successful without the cooperation of the members of the State Medical Association. We must provide additional educational opportunities for these students in our own practice. By doing this, it is hoped that more students will be interested in remaining in Minnesota to practice and to raise their families . . . We must also address ourselves to the availability of health care. In the last 5 years, there has been a 50% increase of students entering our medical schools; I become a bit impatient with people who continue to criticize the American Medical Association and our State organizations for holding down the number of graduates of our medical schools. This is absolutely not true! We are doing everything in our power to encourage State legislatures and the Federal government to fund expansion of our medical schools. However, in increasing the number of our medical students, we must also insist that the quality of their education be continued on a high level. In Minnesota, we have done several things which should achieve these goals. 1. We have increased our enrollment from 165 to 227 at our main campus; 2. In the fall of 1972, 24 students will be entering a new medical school at the University of Minnesota at Duluth and 40 medical students will be entering a new medical school at

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Rochester; 3. The State Medical Association and community physicians are providing learning opportunities to medical students under the Rural Medical Scholarship Program as well as preceptorship programs."

March 1981 — John K. Meinert, M.D., President's Letter

"Data and statistics suggesting that a surplus of physicians now exists, or will exist in the United States, are rapidly accumulating . . . . The most widely discussed is the report of the Graduate Medical Education National Advisory Committee or GMENAC Report. This Committee examined physician population ratios from both demand and need aspects and concluded that there might be a surplus of as many as 70,000 physicians by 1990. Projections suggested that in certain fields, for example, the surgical subspecialties, there will be a large surplus, but in others such as psychiatry and emergency room physicians, there may continue to be a shortage. They concluded that in the primary care areas including: Family Practice, General Internal Medicine, and Pediatrics, the numbers would likely be in an appropriate range."

January 1985 — Thomas G. Briggs, M.D., President's Letter

"In 1971, there were approximately 152 physicians per 100,000 population in Minnesota. By 1980, there were 194. Growth in numbers in types of allied health manpower has even been more rapid. Organized medicine is on record as supporting medical school expansion where there was a shortage. It is my feeling that those of us who are in the field with the perception that there are too many physicians now ought to speak out in the opposite direction. It had been said that market forces should be allowed to work in this situation. However, special circumstances dictate that a more pre-emptive system needs to be developed . . . Excess numbers of physicians will aggravate health care costs, lead to physician underemployment or unemployment, and eventually will be a deterrent for quality students entering medicine. I urge the formation of an ongoing Advisory Body, which can better anticipate medical manpower needs, dampen the wide swings in medical manpower needs, and eliminate the serendipitous approach that now exists."

My predecessors didn't solve the physician supply problem. I didn't solve the problem as a trustee and president of MMA. I therefore pass this 118-year-old problem onto my able successor, L. Ashley Whitesell, M.D., and our capable chairman of the Board of Trustees, Robert D. Christensen, M.D., who will continue to work toward a solution to this vexing problem. *JFK*

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DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride INDERAL LA is available as 60 mg 80 mg 120 mg and 160 mg capsules

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites When access to beta-receptor sites is blocked by INDERAL the chronotropic inotropic and vasodilator responses to beta-adrenergic stimulation are decreased proportionately

INDERAL LA Capsules (60 80 120 and 160 mg) release propranolol HCl at a controlled and predictable rate Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol resulting from the slower rate of absorption of propranolol Over a twenty-four (24) hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings however such as hypertension or angina where there is little correlation between plasma levels and clinical effect INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension it may be used alone or used in combination with other antihypertensive agents particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina palpitations and syncope INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first-degree block 3) bronchial asthma 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

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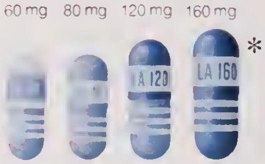

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can in some cases lead to cardiac failure Therefore at the first sign or symptom of heart failure the patient should be digitalized and or treated with diuretics and the response observed closely or INDERAL should be discontinued (gradually if possible)

> IN PATIENTS WITH ANGINA PECTORIS there have been reports of exacerbation of angina and in some cases myocardial infarction following *abrupt* discontinuance of INDERAL therapy Therefore when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted however that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl) like other beta blockers is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents eg, dobutamine or isoproterenol However such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers

DIABETES AND HYPOGLYCEMIA Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required Beta blockers may mask tachycardia occurring with hypoglycemia but other manifestations such as dizziness and sweating may not be significantly affected Following insulin-induced hypoglycemia propranolol may cause a delay in the recovery of blood glucose to normal levels

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism including thyroid storm Propranolol may change thyroid function tests increasing T_4 and reverse T_3, and decreasing T_3

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME several cases have been reported in which after propranolol the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. GENERAL Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may return of increased intraocular pressure

CLINICAL LABORATORY TESTS Elevated blood urea levels in patients with seve disease elevated serum transaminase alkaline phosphatase lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such a pine should be closely observed if INDERAL is administered The added catecho blocking action may produce an excessive reduction of resting sympathetic nervous which may result in hypotension marked bradycardia vertigo syncopal attacks, or ort hypotension

Caution should be exercised when patients receiving a beta blocker are admin calcium-channel-blocking drug especially intravenous verapamil for both agents m press myocardial contractility or atrioventricular conduction On rare occasions the co tant intravenous use of a beta blocker and verapamil has resulted in serious adverse re especially in patients with severe cardiomyopathy congestive heart failure or recent m dial infarction

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol

Ethanol slows the rate of absorption of propranolol

Phenytoin phenobarbitone and *rifampin* accelerate propranolol clearance

Chlorpromazine when used concomitantly with propranolol results in increased levels of both drugs

Antipyrine and *lidocaine* have reduced clearance when used concomitar propranolol

Thyroxine may result in a lower than expected T_3 concentration when used concom with propranolol

Cimetidine decreases the hepatic metabolism of propranolol delaying eliminatio increasing blood levels

Theophylline clearance is reduced when used concomitantly with propranolol

CARCINOGENESIS, MUTAGENESIS IMPAIRMENT OF FERTILITY Long-term stuc animals have been conducted to evaluate toxic effects and carcinogenic potentia month studies in both rats and mice employing doses up to 150 mg kg day there evidence of significant drug-induced toxicity There were no drug-related tumorigenic e at any of the dosage levels Reproductive studies in animals did not show any impai fertility that was attributable to the drug

PREGNANCY Pregnancy Category C INDERAL has been shown to be embryoto animal studies at doses about 10 times greater than the maximum recommended humar

There are no adequate and well-controlled studies in pregnant women INDERAL sho used during pregnancy only if the potential benefit justifies the potential risk to the fetus

NURSING MOTHERS INDERAL is excreted in human milk Caution should be exer when INDERAL (propranolol HCl) is administered to a nursing woman

PEDIATRIC USE Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have required the withdrawal of therapy

Cardiovascular Bradycardia, congestive heart failure intensification of AV block hyp sion paresthesia of hands, thrombocytopenic purpura arterial insufficiency, usual Raynaud type

Central Nervous System Light-headedness, mental depression manifested by inso lassitude weakness fatigue reversible mental depression progressing to catatonia disturbances, hallucinations vivid dreams an acute reversible syndrome characterize disorientation for time and place short- memory loss emotional lability s clouded sensorium and decreased pe mance on neuropsychometrics For imme formulations fatigue lethargy and dreams appear dose related

Gastrointestinal Nausea vomiting ep tric distress abdominal cramping dia constipation, mesenteric arterial thromb ischemic colitis

Allergic Pharyngitis and agranuloc erythematous rash fever combined wi ing and sore throat, laryngospasm and res tory distress

Respiratory Bronchospasm

Hematologic Agranulocytosis nonthrombocytopenic purpura thrombocytopenic pur

Auto-Immune In extremely rare instances, systemic lupus erythematosus has reported

Miscellaneous Alopecia LE-like reactions psoriasiform rashes dry eyes, male impo and Peyronie's disease have been reported rarely Oculomucocutaneous reactions invo the skin serous membranes and conjunctivae reported for a beta blocker (practolol) hav been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochlorid sustained-release capsule for administration once daily If patients are switched from IND Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therap effect is maintained INDERAL LA should not be considered a simple mg-for-mg substitu INDERAL INDERAL LA has different kinetics and produces lower blood levels Retitratior be necessary especially to maintain effectiveness at the end of the 24-hour dosing inter

HYPERTENSION — *Dosage must be individualized* The usual initial dosage is 8 INDERAL LA once daily whether used alone or added to a diuretic The dosage ma increased to 120 mg once daily or higher until adequate blood-pressure control is achi The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage mg may be required The time needed for full hypertensive response to a given dosa variable and may range from a few days to several weeks

ANGINA PECTORIS — *Dosage must be individualized* Starting with 80 mg INDERA once daily dosage should be gradually increased at three- to seven-day intervals until op response is obtained Although individual patients may respond at any dosage leve average optimal dosage appears to be 160 mg once daily. In angina pectoris, the value safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued reduce dosage gradually over a period of a few weeks WARNINGS)

MIGRAINE — *Dosage must be individualized* The initial oral dose is 80 mg INDERA once daily The usual effective dose range is 160-240 mg once daily The dosage ma increased gradually to achieve optimal migraine prophylaxis If a satisfactory response obtained within four to six weeks after reaching the maximal dose INDERAL LA therapy sh be discontinued It may be advisable to withdraw the drug gradually over a period of se weeks

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are limited to permit adequate directions for use.

*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

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1. INDERAL LA National Compliance Evaluation Program Data on file, Ayerst Laborato

2. Ravid M Lang R, Jutrin I The relative antihypertensive potency of propranolol oxprer atenolol and metoprolol given once daily *Arch Intern Med* 1985, 145 1321-1323

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perspectives

Awareness of time

Robert O. Fisch, M.D.

Dr. Fisch is a professor of pediatrics at the University of Minnesota and takes care of PKU children in Minnesota and neighboring states.

I have reached the age of awareness: Through a recent illness I came to realize that the time of my life is limited. We all know this fact theoretically, but only our own serious illness will make it real for us. And when the fact becomes real, it is bound to affect us and our families by completely altering our habitual modes of thinking, feeling, and acting. As each passing day brings each of us closer to the end of life, the young or healthy among us tend to ignore or to dismiss the transiency of human existence. We who are old or sick, however, cannot help experiencing this transiency and responding to it. We are standing at a crossroad, and the turn we take will determine the quality of the time remaining to us.

If we choose one road, we will be cast down by negative feelings of fear, hopelessness, and despair mingled with envy, resentment, and anger. Such negative feelings poison our thoughts and feelings, spoil our personal relationships, and preclude any kind of involvement, productivity, or enjoyment. They decrease both the quality and the length of time that is left to us.

If we choose the other road, we will be lifted by positive feelings of hope, courage, and joy mingled with generosity and sympathy. Such positive feelings issue from an acceptance and appreciation of our limitations, including the transiency of our existence. Once we have accepted and appreciated our limitations, we find all our relationships and experiences precious and fulfilling. Each taste, smell, or sight brings us pleasure or joy. Whatever concerns—joys or sorrows—we share with fellow human beings renew our strength and desire to make the most of the gift of life. We become more outgoing and unselfish, more constructive and creative than we have ever been. We are changed for the better in all our physical and mental functions.

The choice between these positive and negative feelings is of the utmost consequence to physicians and patients alike. The dictionary defines *physician* as "a person skilled in the art of healing." As physicians, we can make our patients feel better and live longer—but only up to a certain point. We are all subject to the laws of the universe whereby change is constant and all forms of life are contingent. That is to say, they have a certain beginning and end as well as gradual transformations between these two points. Thinking of our transient existence in this context, we are wise to consider death—the inevitable end of life—as a positive rather than negative phenomenon. For it seems to be not only the end of one form of existence, but also the beginning of another one. The existence ending has been frequently trying, painful, or even intolerable while the existence beginning will entail—depending on our beliefs—material or spiritual transformation or both.

As physicians we must minister to temporarily or chronically, acutely or terminally diseased patients. Our science and education have provided us with information about how long a typical patient in a certain stage of a given disease is likely to live. Our patients and their relatives, in turn, expect us to provide them with this information. Yet, as the information is transmitted from scientist to teacher, from teacher to physician, and from physician to patient, it is seldom mentioned or emphasized that estimates of life expectancy represent statistical averages and fail to take into account individual variations, attitudes, and therapeutic measures about to be discovered or perfected. If we inform our patients merely about their statistically probable life expectancies, we rob them of their individuality, erode their optimism, and, most grievously, conceal from them the prospects and rewards of choosing the road of positive feelings.

Whether we are physicians or patients, we must become aware of the wisdom of responding positively to the awareness of contingent human existence. Such an understanding benefits those whose lives are ending, as well as those whose lives are being wasted because of their failure to appreciate and to enjoy what even the most ordinary human experiences have to offer them.

While we are being trained as physicians, we must receive a deeper grounding in both theoretical and applied philosophy and psychology, enabling us to more effectively help our patients understand human life and lead rewarding lives. We are obliged to offer our patients—young or old, curable or incurable, hopeful or hopeless—not only the most appropriate diagnostic and therapeutic procedures but also insight into appreciating and enjoying the time remaining to them.

special feature

Strategies to take the sting out of tax reform

Todd I. Freeman

Mr. Freeman is an attorney and certified public accountant practicing law in the area of medical practices and professional corporations. He is a shareholder of the law firm of Larkin, Hoffman, Daly & Lindgren, Ltd., which has offices in Minneapolis and Bloomington.

On October 22, 1986, President Reagan signed into law one of the most sweeping changes to our tax system ever. Decades of previous legislation promoted by special interest groups had brought incentives for certain types of investments and activities. The basis for the 1986 Tax Reform Act is to remove, or dramatically dilute, any tax incentives in the business or investment decision-making process. As a result, many time-honored business practices need to be changed. All businesses, including physician practices, need to re-examine their tax planning because many of these changes are not readily apparent.

The price of fairness in the new tax system is tremendous complexity added to an already complicated system. The strategies described below are particularly suited to physicians and their practices. Many contemplate the use of a professional corporation. Contrary to many recent articles, a professional corporation may still be a useful tax-planning vehicle.

Deferral of Income into 1988

While the changes of the Tax Reform Act that restrict deductions are effective January 1, 1987, the 28% maximum tax rate is delayed until 1988. The "maximum" rate for 1987 is 38.5%, but under the right (or wrong) circumstances, the marginal tax bracket can rise close to 50% in 1987. Therefore, there may be a great incentive to postpone income until 1988 because of the drop in tax rates.

The deferral of income from 1987 to 1988 has two advantages. First, the tax itself is paid one year later. Second, the actual tax is less. A physician can enter a deferred compensation agreement, if properly designed, with his or her professional corporation prior to such compensation being earned. Obviously, the sooner such an arrangement is consummated, the more compensation that can be deferred.

On December 22, 1986, the Internal Revenue Service, in its News Release IR-86-172, announced its intentions to carefully scrutinize arrangements intending to defer income. The IRS states in its Announcement 87-3 that it would deem compensation to be constructively received in the earlier year if the deferral is not pursuant to bona fide arms-length agreement with business substance, or if the right to receive the income is not subject to substantial limitation or restriction. Normally a deferral of income for a year would meet the "substantial limitation" requirement due to the exposure of the funds to claims of creditors of the professional corporation. These developments highlight the need for a thoughtfully designed arrangement.

It now appears that either the Treasury, through its position stated in proposed regulations, or Congress, through its Technical Corrections Act this year, will cause almost every professional corporation to adopt a calendar year, meaning a deferral of income by a physician to 1988 will result in a 1987 corporate income tax. This tax is normally recovered, however, by the creation of a net operating loss in 1988 which is carried back to cause a refund of the 1987 tax. Therefore, the expected return on deferring income must be projected taking into account the loss of the use of the amount paid for corporate tax for one year against the advantage to the physicians of paying their tax one year later at a lower bracket.

Example: Metro Surgeons, P.A., enters into deferred compensation arrangements with its physicians, resulting in $100,000 of deferred compensation. Because it must switch to a calendar year, it is not able to avoid creating taxable income and, therefore, pays a corporate tax of $22,250. The payment of the deferred compensation results in a net operating loss to the corporation, allowing a refund of the $22,250 tax paid in 1987. The physicians receive the $100,000 after 1987 and, instead of paying a 38½% tax in 1987, they pay a 28% tax resulting in a savings of $10,500.

Saving Entertainment and other Business Expenses

Medical practice, like any business, involves relationships that must be cultivated and maintained for a successful practice. The new tax law allows only 80% of meals and entertainment expenses that meet the new stricter tests to be eligible for deduction. If these are unreimbursed business expenses listed by the individual physician on his or

Example:

Assumptions	
Unreimbursed entertainment and meals expenses	$ 8,000
Physician's adjusted gross income	$100,000
2% threshold on deduction of expenses	$ 2,000
Taxpayer's marginal tax bracket	38.5%
Physician's salary before reduction	$ 90,000
Family Practice, P.A., normally zeros out their taxable income with bonuses annually.	

Effect on Corporation	**Without Reimbursement**	**Reduce Salary and Reimburse**
Family Practice, P.A. taxable income	$0	$0
less expense reimbursement to physician		(8,000)
plus 20% disallowance		1,600
plus salary reduction (i.e., lower salary deduction)		8,000
Resulting taxable income	$0	$1,600
Tax	$0	$ 240
Effect on Physician		
Tax benefit from salary reduction:		$3,080
Business expenses: amount	$8,000	
less 20% disallowance	(1,600)	
Net amount eligible	$6,400	
less 2% floor	(2,000)	
Net deduction	$4,400	
Tax Benefit	$1,694	<1,694>
Tax savings from reimbursing out of salary		$1,386
Net tax savings (after corporate tax)		$1,146

her tax return, then the total amount for the year is only deductible to the extent it exceeds 2% of the adjusted gross income.

The 2% threshold on deductibility of these expenses may be avoided by having the professional corporation reimburse all business expenses. Many physicians already make use of their professional corporations to pay entertainment, auto, and other business expenses. These expenses, many times through the employment agreement, serve to reduce the physicians' salaries. Appropriate adjustments are possible through the employment agreement to keep compensation equitable among physicians. In addition, any tax that is paid as a result of the 20% disallowance of a deduction for entertainment and meals may also be allocated among the physicians. These allocations are also possible in a partnership.

Buy-Ins and Buy-Outs

The repeal of the capital gain deduction and the allowance of 100% deductibility of long-term capital losses should cause a re-evaluation of the buy-in and buy-out process. Typically, buy-ins and buy-outs of medical practices involve two types of payments. The first type is a capital investment in the shares of stock in a professional corporation or the capital interest in the medical practice partnership. These amounts usually represent the value of the hard assets in the corporation and goodwill, if any. It does not include the value of accounts receivable. This capital investment is made with after-tax dollars by the buyer and results in capital gain to the seller.

The second aspect of a buy-in or buy-out would be the proportionate share of the accounts receivable. A buy-in to accounts receivable could be accomplished by shifting salaries from the physician buying in to the existing shareholder-physicians through the employment agreements or, if a partnership practice exists, by use of guaranteed payments in the partnership agreement. The buy-out in a professional corporation would be accomplished through deferred compensation allowing a deduction to the corporation for payments made to the departed physician and ordinary income to the physician.

The total tax result for all parties is less using the latter technique described above for accounts receivable rather than the former technique described for capital investment. The salary shifting technique, however, results in the purchaser of receivables receiving the full tax advantage and the seller of the receivables paying the maximum tax. The amount paid for a capital investment is with expensive after-tax dollars to the purchaser and, prior to tax reform, resulted in desirable capital gain dollars to the sellers. Therefore, the senior physicians had a lower tax at the expense of the junior physician, resulting in higher total taxes created in the transaction.

Under tax reform, the existing shareholders or partners of a practice would pay full income tax (reduced by their basis in the stock or partnership interest) on any amounts received from their new shareholder or partner in the sale of stock or partnership interest. This would now result in both sides paying the full tax. However, if these amounts came by way of additional compensation through the corporation (or guaranteed payments through the partnership), the tax would usually be the same to the existing shareholders and partners but would result in a tremendous savings to the new shareholder or partner. Likewise, upon the termination of a physician from a practice, the amounts received as deferred compensation to the departed physician would be taxed similarly to amounts received for stock or partnership interests. But, only in the former case does the practice get a deduction for the payment.

The determination of the new

Example:

Dr. Jone's buy-in	Existing Plan	Proposed Plan (reducing stock price and salary by $18,000)
Stock to be sold by Dr. Smith	100 shares	100 shares
(a) Sales price	$20,000	$ 2,000
Dr. Smith's basis in stock sold	$ 5,000	5,000
Dr. Smith's gain <loss>	$15,000	<$ 3,000>
(b) <Tax> or savings @ 33%	<$4,950>	$ 990
Accounts receivable buy-in	$50,000	$50,000
(c) Compensation shift	$50,000	$68,000
(d) Dr. Jones' tax savings and Dr. Smith's tax cost @ 33%	$16.500	$22,440
Net received by Dr. Smith (a + b + c-d)	$48,550	$48,550
After-tax cost to Dr. Jones (a + c-d)	$53,500	$47,560

Dr. Jones saves $5,940, after-tax, without decrease in proceeds to Dr. Smith.

Dr. Smith's Buy-Out	Existing Plan	Proposed Plan
Stock to be redeemed by P.A.	100 shares	100 shares
(a) Redemption price	$20,000	$ 2,000
Dr. Smith's basis	$ 5,000	$ 5,000
Dr. Smith's gain <loss>	$15,000	<$ 3,000>
(b) <Tax> or savings @ 33%	$<4,950>	$ 990
(c) Deferred compensation	$50,000	$68,000
(d) Dr. Smith's tax cost @ 33%	$16,500	$22,400
(e) P.A.'s tax savings @ 15%	$ 7,500	$10,200
Net received by Dr. Smith (a + b + c-d)	$48,550	$48,550
After-tax cost to P.A. (a + c-e)	$62,500	$59,800

P.A. saves $2,700 without a decrease in proceeds to Dr. Smith.

lower stock or partnership value needs to take into account many considerations. The basis in the shares or partnership interests of the existing physicians along with their expected capital gains will determine how much, if any, of a capital loss will result from the lower price, as well as how many years it will take for them to use the loss. Net capital losses over capital gains are limited to a $3,000 deduction per year. In addition, the level of hard assets and capital in the practice, along with the amount historically paid for good will, will dictate how low a stock value may be reasonably determined. Because of the maximum tax of 28% on long-term capital gains in 1987 with a 38.5% ordinary tax rate, adjustments should be made to fund any additional 1987 tax to sellers.

Using Your Practice to Save Your Tax Shelters

One of the most significant impacts of the Tax Reform Act is the "passive loss rule," which provides that losses from passive activities (e.g., real estate) may only offset income from passive activities. Although this rule has limited exceptions for certain real estate investments (for an adjusted gross income of less than $150,000) and a phase-in (which does not apply to the alternative minimum tax), it basically results in an inability to shelter income from a medical practice. Therefore, many existing loss-producing investments held by physicians that heretofore have offset their salaries will lose a substantial amount of their value. However, disallowed losses may be carried forward to future years.

One byproduct of the passive loss rules is a determination of "passive" versus "active" for each activity. A passive activity is one in which the taxpayer does not have material participation (i.e., a regular, continuous, and substantial involvement in the operations). Normally, all of the profitability of a medical practice is paid out by way of compensation to the physicians. Therefore, if the practice is engaged in lab tests, X-rays, and other diagnostic testing in which the physician is not personally involved on a regular, continuous, and substantial basis, there is an opportunity to segregate the profitability of that activity as passive income, and thereby allow an offset of the passive losses from investments.

An option then is to establish a non-professional S corporation in order to provide the ancillary services of the medical practice. The shareholders of the professional corporation would also be the shareholders of the new S corporation. Appropriate documents and arrangements would be made to isolate the costs and personnel engaged in those activities. The resulting net income would be distributed to the physicians not as salary, but as dividends. The S election thus avoids the corporate tax.

Example: Dr. Olson is the sole shareholder of Obstetrics, P.A., out of which she typically draws $200,000 of salary. Dr. Olson also has certain investments that result in passive losses of $50,000. She creates a new S corporation, Lab Sound, Inc., to which she refers all of her patients for lab work and ultrasound. The entire lab and ultrasound operation is run by technicians and nurses leased to Lab Sound, Inc., by Obstetrics, P.A., pursuant to an agreement. Lab Sound, Inc., produces $50,000 of net income which, because Dr. Olson is not a material participant, is passive and offset by investment losses. Dr. Olson's salary out of Obstetrics, P.A., is now $150,000. The net effect is to reduce taxable income by $50,000 through recharacterizing what would be salary to passive income.

In the event the income from the S corporation exceeds the losses of the physician, stock may be gifted to children of the physician to provide a convenient income-shifting device for college funding as well.

Unlimited Use of Vacation Home

Anyone that has purchased a condominium in Vail or a second home in Palm Springs has been well advised by their attorney or accountant that they may not use their condo or second home for more than 14 days during the year if they want to be able to treat it as an investment and take a taxable loss. Often this hinders the desires of the owner and the owner's family to use their getaway. The Tax Reform Act of 1986 may have provided the perfect excuse for justifying unlimited use of the facility during the year.

The new tax law prohibits the deduction of consumer interest but allows the deduction of investment interest (to the extent of net investment income), business interest, and interest on indebtedness secured by the principal residence or a second residence. This "mortgage interest" rule has prompted a consolidation of taxpayers' debts into home equity loans since the beginning of 1987.

A vacation home that meets the requirements for an "investment" (i.e., personal use is limited to 14 days), does not qualify as a second residence for mortgage interest purposes. If a taxpayer's principal residence already is securing the maximum debt allowed and there is an additional debt that is not deductible under the investment interest limitations or because it is consumer interest, then making use of the vacation home equity may be a better deal than qualifying the home as an "investment."

Example: Dr. Leisure owns an Aspen condominium with $100,000 of equity. He is able to generate only $2,000 of passive income in excess of his passive losses, excluding the condo. He has annual interest of $7,000 on a $70,000 debt incurred for various personal expenditures. He has already used his home as security to the maximum under the new tax law to qualify other interest expense. Following is a comparison of the alternatives of treating the second home as a second residence or as an investment.

	Personal Use	
	(Investment) < 14 days	(Residence) > 14 days
Rental income	$ 5,000	$5,000
Interest and taxes	(5,000)	(5,000)
Other expenses	(10,000)	—
Net loss allowed	($10,000)	$0
Consumer interest secured by vacation home	$0	$7,000
Total deduction and loss	$10,000	$7,000
Net passive income offset	2,000	0
Total deduction/loss currently allowed	2,000	7,000
Loss carry forward	8,000	0

One needs to note that an $8,000 loss carryforward results if the property is used no more than 14 days and is able to maintain its status as an investment. However, a lower current tax results from qualifying the property as a second residence. The choice here is between permanently losing the $10,000 of other expenses relating to the operation of the condominium if the property is a second residence versus permanently losing the deduction for the $7,000 of interest expense if the property is an investment. The non-financial considerations of being able to enjoy the property on an unlimited basis may heavily favor qualifying it as a second residence.

Income Shifting to Children

The Tax Reform Act dealt a serious blow to income-shifting techniques that have long been used to fund a child's college education. The Clifford Ten-Year Trust may no longer be established effectively and, while existing Clifford Trusts are grandfathered under the new law, beneficiaries under the age of 14 will be taxed at the parents' tax bracket for unearned income in excess of $1,000. Therefore, wise planning would avoid income in excess of $1,000 to children under the age of 14.

For such children that already have significant capital-producing income in excess of $1,000, their investments should be shifted to those that do not produce a current taxable income (e.g., Series E Savings Bonds, annuities, growth funds or stocks, and municipal bonds). For those children that are under 14 and do not have significant capital, there is still a need to build a fund for college education.

An irrevocable trust for the benefit of a single beneficiary provides the perfect vehicle for transferring capital to produce income at a lower tax bracket. The trust should provide that income is only distributed at the discretion of the trustees and, therefore, any income in the trust not so distributed will be taxed at the trust's 15% tax bracket up to $5,000 income per year. Therefore, a trust may be established for each child, and $5,000 of income may be accumulated at 15% tax bracket until the child is 14 years old. At that time, distributions of the accumulated income may be made at anytime tax-free to the child, as well as distributions of current income to use the child's tax bracket.

If a parent does not have capital to give to a trust, he or she may borrow funds, then gift the funds to the trust, borrow the funds back from the trust, and repay the initial loan. If this loan by the parents from the trust is secured by the parents' residence and within the new limitations, then the interest paid to the trust will be fully deductible to the parent, and the trust will be taxed at 15%.

(Cont.)

On the Horizon

Any physician or physician group that has been involved in tax, pension, and/or estate planning since 1976 knows all too well the aggravation and expense caused by constant changes in the tax laws. Although hundreds of errors were discovered in the Tax Reform Act of 1986 prior to its passage in Congress, and many more are coming to light, tax legislation in 1987 is certain at least to make technical corrections in the Tax Act. Of course numerous considerations must be made that are not discussed here. Only with the advice of an experienced tax advisor should these techniques be attempted. The strategies discussed above do not require any assumption for long-term stability in the tax environment and usually would not prevent alternatives from being considered in the future. It does not appear that there will be substantive tax legislation this year but with a change in control of the Senate we certainly can expect changes in the near future.

PHYSICIAN ASSISTANTS

The National Commission on Certification of Physician's Assistants (NCCPA) has scheduled the 1987 Physician Assistant National Certifying Examination for October 21, 22, 23, and 24.

For eligibility information and/or individual applications, write: Registrar, NCCPA, 2845 Henderson Mill Road NE, Atlanta, Georgia 30341; Telephone (404) 493-9100. Accredited formal training programs will receive an ample supply of applications for their students directly from NCCPA.

The deadline for receipt of applications is June 30, 1987.

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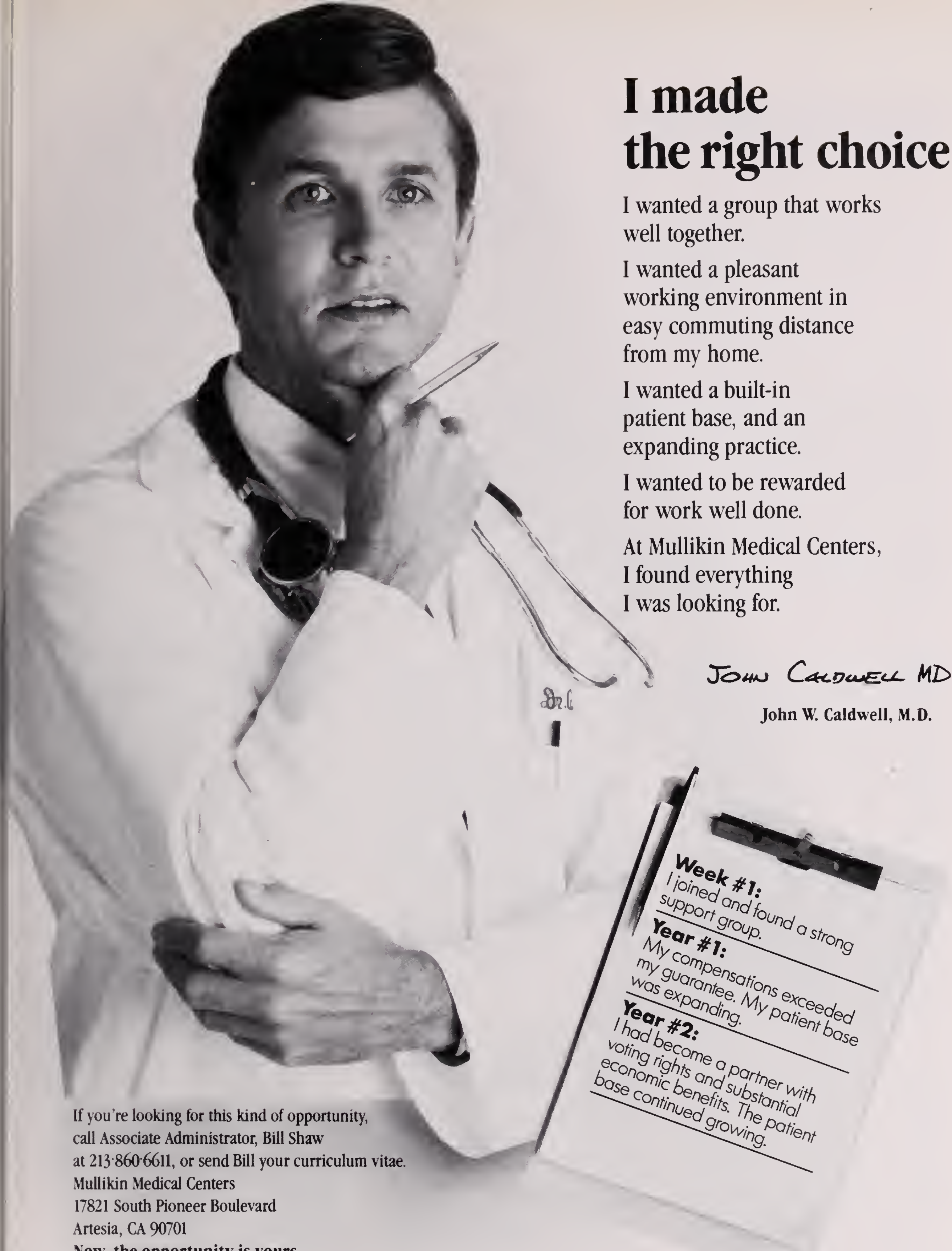

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contributions

Adverse health effects from allergens

summary of a conference

May 10, 1986, St. Paul, Minnesota

M. N. Blumenthal, M.D.; Lloyd Fish, M.D.; Richard Morris, M.D.; William Schoenwetter, M.D.; Paul Steinberg, M.D.

Basic allergy and immunology research is making a great impact on the physicians who deal with allergic problems. A conference on allergens and their clinical significance was held last spring under the sponsorship of the University of Minnesota. The program consisted of presentations by Harold Baer, Ph.D., National Institutes of Health, on the preparation and standardization of allergens; William Solomon, M.D., University of Michigan, on the clinical significance of allergens; N. Franklin Adkinson, Jr., M.D., Johns Hopkins University, on *in vivo* and *in vitro* testing; and John Yunginger, M.D., Mayo Clinic, on immunotherapy.

Allergens are a major cause of adverse health problems. Although we are all exposed to potential allergens daily, only a small percentage of us develop allergic reactions. It has been estimated that approximately 5% of individuals in Minnesota will develop allergic respiratory symptoms from ragweed. Based on an estimated population in Minnesota of over 4 million people, this would translate into over 200,000 people with ragweed-related respiratory conditions. Considering all other aeroallergens capable of causing sensitivity (pollens, dust, molds, and animal emanations), the total number of individuals affected adversely is great. Between 15% to 19% of the population develops allergic rhinitis and 3% to 5% of the population has bronchial asthma.[1] Diseases caused by allergens are extremely important medically, socially, and economically.

Adverse health effects resulting from allergens depend upon the external environment (i.e., the type, concentration, and duration of exposure) as well as upon the person being exposed. The same allergen can cause a variety of clinical manifestations.

Current knowledge has not yet allowed a good quantitative assessment of allergens' total public health impact. There are no standardized methods of evaluating and managing individuals with these adverse reactions. As a result, many concepts and methodologies have been developed. Some are valid and others have no scientific basis. It is important for the physician treating allergic conditions to have current information regarding allergens. Fortunately, substantial recent progress has been made in the characterization, standardization, collection, and clinical significance of allergens, as well as in their use in diagnosis (*in vivo* and *in vitro*) and treatment (immunotherapy).

Allergens—Preparation and Standardization

Allergens need to be well characterized to further the understanding and management of atopic diseases. They are antigens which, as a result of interacting with IgE immunoglobulins, trigger atopic allergic reactions (e.g., tissue changes of hayfever). All allergen types thus far studied (e.g., those from pollen, mites, animals, molds, food,) possess multiple IgE-binding proteins.

The Code of Federal Regulations states that the major aim of the Federal Food and Drug Administration is to ensure the continued safety, purity, and potency of all biologic products. The majority of the allergy extracts used now bear the label "There is no U.S. standard of potency." There are, however, increasing numbers of extracts that *do* meet the U.S. standard of potency (i.e., the insect venoms and some short ragweed preparation). The standardization of potency will in the near future become commonplace in allergenic extracts.

To enable us to proceed with standardization, appropriate source materials are needed, but acquiring good, reproducible source material may be the most difficult part of producing standardized extracts. For example, pollens must not only be from the correct plant but must be collected and processed to minimize contamination in a manner that will permit allergen extraction.

It is difficult to define the proper source materials of insect allergens. It's the venom of stinging insects (bee, wasp, yellow jacket, hornet) that contains the allergens. The saliva of biting insects (kissing bugs, deer flies, etc.) appears to contain their main allergens. Commercial extracts produced from the whole insect probably contain very little of the relevant allergen. Insect allergens responsible for respiratory symptoms probably are derived from body parts, but the exact source organs have not been well studied. The cast skins or egg cases of the cockroach may contain most of their allergen. House dust mites have been extensively studied, and current evidence suggests that fecal particles contain important allergens.

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*Supported by the Section of Allergy, Department of Medicine, University of Minnesota Medical School, and 3M Diagnostic Systems.

Molds in general, have not been well defined. Important allergens are present in spores as well as mycelia. We have very little data on how to prepare potent well-characterized food extracts.

Many animal allergens are not confined to or even present in the epidermis. Skin, saliva, and urine all may be major allergen sources. In mice and rats the most important allergen source is the urine. Commercially available rat allergen extracts do not contain urinary proteins, however. A cat antigen (Cat I) has been purified and standardized.

Reference standards for immunotherapy are also critical because there is no such thing as an absolute potency standard. Potencies are determined with regard to a reference product and these are translated into potency units. In the United States the allergy unit (AU) was recently created for rating the biological activity of standardized extracts. This unit, based on the skin test reactivity of the preparation, will provide a guide to the safe use of standardized products. The international reference preparations are labeled in International Units (IU) and are arbitrary units. Preparation of World Health Organization (WHO) standard reference extracts is ongoing. At present, only three are available: short ragweed, timothy grass, and house dust mites. Six more allergens are almost ready for submission to WHO, (Bermuda grass, birch, alternaria, cat, dog, and rye grass). AUs and IUs appear to be quantitatively similar for many extracts. However, some differences in the two systems of units are bound to occur with some extracts. Standardized extracts of all manufacturers are not different from a reference when compared using the FDA-required tests. However, they may or may not be equivalent by other criteria. This is because many other methods and a large number of components of extracts are not well-defined. Potency of an extract is also dependent on proper storage. Expiration dates are arbitrary in nonstandardized extracts. The standardized extracts are required to have ongoing stability studies.

It should be noted that the allergens used for *in vitro* testing, such as the RAST test, are not regulated by the Allergenic Products Standards section of the FDA. At present, they are not required to fulfill the same criteria for potency and purity as the regulated extracts. This leads to inconsistencies of RAST results over time and from laboratory to laboratory.

The quality of the diagnostic methods and immunotherapy will be determined by the allergen used. Currently, a majority of the allergen preparations used for *in vitro* and *in vivo* tests as well as immunotherapy are not fully defined or standardized.[2,3]

Allergens—Clinical Significance

Physicians caring for allergy patients are faced with the fundamental question: would an allergen exposure having the form, intensity, and duration (i.e., the dose and time characteristics) encountered in nature cause or promote the symptoms of allergic disease in a specific patient? Like many basic questions in this world, this one is not precisely answerable using available resources. Instead, physicians make educated guesses and inferences about the relative clinical significance of different allergens to which their patients are exposed.

The following factors contribute to our inability to precisely determine the clinical relevance of allergen exposure:

- There are major gaps in our information about and understanding of exposures encountered by individual patients.
- There are no available diagnostic test criteria that allow us to confidently say that a patient will, under natural circumstances, respond at a clinical level to ongoing allergen exposures. Many individuals may have positive skin tests or elevated RAST values that have no reflection in clinical allergic symptoms or exposure.
- Exposures are much more complex than we might like to think they are. For example, if a patient suffers allergic symptoms following ingestion of wine, the physician might think that this means the patient is responding adversely to components of the yeasts used in fermentation. However, we must bear in mind that the same bottle of wine often contains sulfites, naturally produced histamine, ethanol, aromatic agents, and additives. Each of these factors might contribute to the production of allergy-like symptoms. When we see the cloud of dust following a combine across a field during harvest seasons we should remember that this dust holds huge quantities of mold species, pollens, vegetative plant parts, bacteria, and endotoxin. Here again, the allergen exposure is very complex.
- Dose-response relationships do not exist for any inhalent antigen, and it is possible that individuals will differ markedly in this respect. A number of studies of symptoms scores during the ragweed pollen season have documented that patients' symptoms do not necessarily parallel the rise and fall of ragweed pollen counts.

Knowledge of the allergen and its concentration is needed to be able to relate it to the clinical picture. The approaches to sample collection vary depending upon the aeroallergen being collected and its concentration. The three major methods of sampling allergens with defined morphology are pressure fallout (gravity), impaction, and suction-driven filtration and impingement. The methods used to document allergen exposure in nature have improved with the introduction of rotating-arm impactors and suction traps (impingers). These devices are substantially more efficient than the previously used gravity-type collectors and have increased the accuracy of the morphologic identification of pollens and spores. We now understand that some allergen types are present in several size fractions of atmospheric aerosol. Allergens smaller than intact pollens can be found in microaerosols, meaning that derivatives of whole pollen grains *do* retain antigenicity. Submicronic amorphous particles of ragweed allergen have been found both before and after the ragweed season and the same is true for oak pollen allergen. The source of these allergen fractions is unclear. It is conceivable that allergen may be shed from other vegetable parts of the plant such as leaves, stems, and plant hairs. An alternative explanation may be that the allergen has been eluted from the pollen on moist surfaces in nature and is redispersed in mists.

Provocative testing: The relationship between allergen and clinical pictures is made in most cases by correlating the history of symptoms to known exposure. Another method used to ascertain the relevance of allergen exposure is the use of provocative testing. A small dose of the suspected allergen is introduced under controlled conditions, and observations are made at various points in time to determine if an adverse reaction is occurring. The observations are compared with those following an allergen-free control exposure. There are problems with provocative testing. Excessively potent challenges may cause false-positive reactions in individuals with a modest degree of sensitivity but no symptoms in field exposure. They occur because we do not understand very well the natural exposure "doses." False-negative provocative tests may occur because the allergen has lost activity or the laboratory challenge doesn't take into account the effect of nature's "priming" phenomenon. The priming effect occurs due to ongoing allergen exposure in nature which may increase the responses of mucous membranes. Our lack of understanding of this priming effect may contribute significantly to our difficulty in interpreting provocative tests. Much remains to be learned about personal exposure to clinically important allergens found in nature.[4-6]

In Vivo and In Vitro Testing

Allergy skin testing is the main method used to determine the presence of a specific IgE antibody. Recently many *in vitro* tests have been developed as alternatives to identify the presence of an IgE-allergen reaction. The accuracy of these methods is dependent upon the antigen used as well as the procedure. They are becoming more widely used in the diagnoses and management of patients.

Higher total serum IgE has been shown to correlate generally with the presence of allergic diseases, however, significant overlap between allergic and non-allergic populations often results in diagnostic uncertainty. In general, the most useful information comes from very high or very low total IgE levels. Very high values are found in diseases with immune regulatory defects such as immunodeficiency, neoplasm, and parasitism (particularly helminth). Very low levels may help confirm the clinical suspicion of non-allergic disease. Since IgE levels vary with age, age-specific values are necessary for interpretation of results. The proficiency of 33 commercial laboratories in performing IgE assays was studied by the National Centers for Disease Control in 1983 using a variety of techniques employing either radiolabeled or enzyme-labeled antibodies. Variation among duplicate-coded specimens was found to be minimal, but enough interlab variation was found to recommend that commercial labs performing this test use similar standards and submit to periodic proficiency testing.

Another aid in the technique for diagnosis of allergic diseases is the quantitation of allergen-specific IgE antibody in serum. The original technique available since 1967, called RAST (radioallergosorbent test) now is but one of a wide variety of methods employing solid-phase sorbents to which allergen is coupled. Newer enzyme-labeled anti-IgE antibody techniques are competing with the original radiolabeled methodology. Much of the current marketing is directed toward reducing the completion time of the assay.

Antibodies to pollen, molds, dust mites, animal proteins, and foods can be measured. Although a number of companies offer tests for a variety of "drug" antibodies, the only test now available using penicilloate (the "major" determinant of Penicillin G) is of limited value. RAST for specific IgE antibodies correlates less well with clinical history than skin tests. This is not expected because RAST measures the amount of specific IgE circulating while skin tests measure the amount fixed to skin mast cells, and by extrapolation, the amount fixed to respiratory tract mast cells. Skin tests are much less expensive than RAST. Proficiency testing carried out by the National Centers for Disease Control in 1983 and more recently by the College of American Pathologists showed marked differences in the ability of commercial laboratories to perform the assays and showed that some laboratories provided erroneous results. It should be noted that there is usually no proficiency testing by laboratories based in physicians' offices. It is recommended that 1) better standards be available to commercial labs and private offices performing the tests; 2) test result format be made more uniform rather than follow the current reporting of "pluses," "classes," and ratios or percentages of negative or positive controls; 3) commercial labs participate in periodic proficiency testing; and 4) serum for analyses be sent only to laboratories that use periodic proficiency testing.

The major indications for RAST are: 1) patients who do not have normal skin because of extensive dermatitis or dermographism, 2) patients who cannot stop antihistamines or tricyclic antidepressants with antihistamitic properties, which would result in false-negative skin tests, 3) the need to avoid provoking anaphylaxis by testing with a food or drug that may have provoked such a reaction, 4) testing of infants or young children who will not tolerate skin tests or who need testing with a large number of allergens, and 5) testing for food allergy when an appropriate skin-testing material is not available. The precise relationships between the *in vitro* test to determine the presence of specific IgE antibodies and the clinical picture are not well established.[7-11]

Immunotherapy

The main ways of managing atopic disease have been avoidance of the causative allergen, pharmacotherapy, and immunotherapy. The rationale of immunotherapy is to increase a person's tolerance to the causative allergen by exposing that person to increasing concentrations of it. Immunotherapy has been in use for 70 years and its efficacy for allergic rhinitis and for stinging insect allergy has been amply proven. The precise mechanism(s) of action on the immune system remain to be elucidated.

Immunotherapy for asthma has been difficult to study for several reasons: asthma usually has multiple triggers in addition to IgE-mediated allergy; asthma often has both early and late phases; and documentation of the levels of natural antigen exposure during immunotherapy trials has been difficult to achieve. Despite these obstacles, interest in immunotherapy for asthma is increasing because of the widespread feeling that chronic allergen exposure may cause long-term effects in the airways that are masked but not prevented by pharmacotherapy. Immunotherapy may be able to alter the natural history of chronic asthma.

Immunotherapy is indicated for asthma patients whose disease is provoked by aeroallergens, who have skin test or serologic confirmation of sensitivity, and whose symptoms are not completely controlled by avoidance and appropriate pharmacotherapy. In research studies, results of treatment are measured by symptom and medication scores and bronchial challenge thresholds. There is, as yet, no reliable correlation of clinical improvement with antigen-specific IgE or IgG levels.

Several recent studies have concentrated on asthma caused by animal allergens because the environmental exposure can be fairly well controlled. American and Swedish studies[12,13] using cat and dog extracts have documented the efficacy of immunotherapy for asthma related to these animals.

A Scandinavian study[14] of immunotherapy of asthmatic children sensitive to mold (Cladosporium) documented a significant decrease in bronchial challenge reactivity and decreased medication use during the peak weeks of seasonal sporulation.

At present, immunotherapy may be considered for patients with respiratory allergies caused by dust mites, molds, pollens, animals, and for those with anaphylactic sensitivity to insect venoms. Research on injection immunotherapy for patients with anaphylactic food sensitivity has been attempted but without success. Intra-nasal and oral immunotherapy are being studied but have not been shown to be practical or effective. Sublingual "desensitization" is sometimes given by clinical ecologists and chiropractors using solutions containing food or chemicals; this is an unproven procedure that has been rejected by the American Academy of Allergy and Immunology.[15]

The future of allergy immunotherapy will be enhanced by the availability of nationally standardized extracts. Antigens may be modified to enable the patient to receive fewer injections with fewer side effects. Using other methods, eventually it may even be possible to abolish clones responsible for the production of antigen-specific IgE antibody altogether. Until then, immunotherapy will continue to be a helpful option for management of allergic patients.

Conclusion

Allergens are increasingly being recognized as a cause of adverse health problems. It is apparent that standardized methods of diagnosis and treatment are needed to manage these problems.

Many of the currently available commercially prepared allergen extracts may or may not have the relevant allergens they are described to have. Standardization is needed to ensure that relevant allergens are in extracts and that extracts have lot-to-lot consistency of their allergenic activity. Without such standardization, using these materials to evaluate and treat patients is difficult and at times impossible.

We are in contact with numerous potential allergens daily. The methods used to collect samples vary depending upon the allergens being collected and their concentrations. A great deal of variability exists among methods, locations, and atmospheric conditions. The limitations of aeroallergen counts obtained should be known by the physician as well as the patients. There is a need for improved standardized sampling techniques.

Currently, the relationship between the allergen and the clinical picture may be assumed on the basis of the patient's history and at times provocative testing.

In vivo skin testing as well as increasing numbers of *in vitro* allergy tests are becoming available to the physician. There is currently no *in vivo* or *in vitro* test that predicts with a high degree of certainty whether an individual will have symptoms under natural exposure. These tests should only be used to confirm the clinician's impressions based on the patient's history and known risk patterns. They should not be used as a primary test to discover what the clinical allergy is. Because of the variability between laboratories in performing *in vitro* tests (i.e., RAST tests) as well as the insidious appeal of other tests (i.e., cytotoxicity tests and subcutaneous and sublingual provocation procedures) without any proven value, physicians should carefully select the tests used to confirm their clinical impressions. "Good medical practice is best conducted by physicians. These physicians would include allergists who personally perform or supervise and interpret the history and physical examinations that are the fundamental investigative procedure on which further evaluation is based and who subsequently personally order and interpret confirming diagnostic procedures, the result of which will dictate appropriate environmental control, pharmacotherapy, immunotherapy, and other therapeutic procedures."[3,15]

The physician may consider immunotherapy once he or she has established that the clinical picture is compatible with a known allergy, that a causal relationship between the allergen and the clinical picture exists and that the individual has evidence of a specific IgE antibody directed toward the causative allergen. Allergy immunotherapy has been well established for use in allergic rhinitis and stinging insect anaphylactoid reactions. Recent data indicate its effectiveness for the treatment of bronchial asthma. There are no adequate studies of the cyclical diets, injection or sublingual therapy with chemicals, or environmentally controlled units in patient management.

Improved characterization and standardization of allergens, diagnostic tests, and immunotherapy procedures are resulting in a better quality of life for the individual suffering from allergic diseases.

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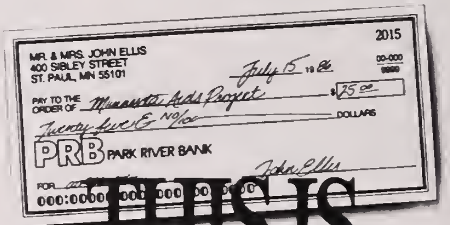

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Tonsillectomy referrals in an HMO-based population

Howard Stang, M.D., and the Group Health, Inc. Pediatric Quality Assurance Committee***

The indications for a tonsillectomy are today still quite controversial. Using established objective criteria from a large prospective study, the Group Health, Inc. Pediatric Quality Assurance Committee examined ENT referrals from our HMO staff providers for their appropriateness. Data and observations are reported concerning age, sex, rate of referrals, rate of surgery, complications, and documentation of indications for referral. The most common indication was obstruction (56%) with an 88% surgical rate. Second most common was chronic infection, for which only 39% of the charts met surgical justification but 79% of the patients underwent tonsillectomy. Overall surgical rate was 85%. Postoperative hemorrhaging occurred in 5.1%, comparable to the rate in other studies. The key to future studies of benefit and cost analysis strongly depend on primary care documentation and adequate communication with our consultants.

The indications for tonsillectomy in the management of pediatric otolaryngological problems remain uncertain and controversial. Experience with this procedure has swung from "when in doubt, take them out," through "we don't do tonsils these days," to "some you do, some you don't."

The most recent attempt to evaluate criteria for tonsillectomy was made by Drs. Bluestone and Paradise at Children's Hospital of Pittsburgh in a comprehensive trial from 1971 to 1982. They identified five indications for tonsillectomy: recurrent infection, abscess, chronic tonsillitis, obstructive symptoms, and chronic lymphadenopathy.[1]

Other studies of indications and hospital utilization have been undertaken. The Foundation for Health Care Evaluation studied surgical justification for admission to the hospital for tonsillectomies in 1976 and 1977. This study included 23 Minnesota hospitals and 1,059 patients.[2] A hospital chart audit was done on 326 tonsillectomies alone, and 563 adenotonsillectomies. Audit criteria were selected from guidelines proposed by the AMA and included: suspected tumor; abscess; diphtheria; hypertrophy causing corpulmonale; abnormal breathing, swallowing or speech with at least three months' duration; poor weight gain due to dysphagia; four or more episodes of physician-documented tonsillitis in the preceding year; and chronic tonsillitis (defined as intermittent sore throat and persistent tonsillar exudate and tonsillar hypertrophy of at least six months duration).

As in previous retrospective hospital chart review studies, the Minnesota T&A audit was hampered by lack of hospital documentation for surgical justification in 53% of the charts. The most commonly documented reason for tonsillectomy was recurrent tonsillitis (19%) followed by peritonsillar abscess (16%).

In an effort to monitor quality utilization of health care dollars, PSRO organizations and HMOs are identifying patterns of medical practice and providing a reasonable response to the public's call for health care accountability.

Serving over 200,000 members with 30% under the age of 16, Group Health Inc. (GHI) is in a unique position to study a wide variety of medical practices. The Pediatric Quality Assurance Committee undertook a small study to determine whether referrals from our pediatricians and family practitioners were appropriate.

Method

The Pediatric Quality Assurance Committee, consisting of four GHI pediatricians and a quality assurance specialist reviewed existing objective criteria from other similar audits. The committee adopted the contemporary and easily definable criteria used in the prospective study at Children's Hospital of Pittsburgh (Table 1).

To study this quality issue the committee asked: Are referrals of pediatric patients from GHI staff-model practitioners to otolaryngologists for elective tonsillectomies or adenotonsillectomies appropriate? The objective was to determine our referral patterns and examine the appropriateness of the surgical procedure based on our adopted criteria.

The study was performed by reviewing the records of all ENT referrals from our staff-model practitioners for tonsillectomy or T&A during July 1983 through June 1984. Patients over the age of 16 were then excluded. The outpatient and hospital charts of the remaining subjects were then reviewed by our medical data analysts for age, sex, reason for referral, the surgeon's indication for surgery, and surgical complications.

Results

During the study year, 188 pediatric-aged patients were referred to ENT for tonsillectomy or T&A, which translates to three referrals per thousand patients. Six hospital-

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ized patients who had emergency tonsillectomies for peritonsillar abscess were excluded from our data as they did not meet the study objective of elective tonsillectomy. Of the 182 remaining subjects, 163 (90%) were referred by a pediatrician and 19 (10%) by family practitioners; 85 were males (47%) and 97 were females (53%). The mean age was 7.8 years with a median and mode of seven years (Figure). Seven referrals for patients less than three years old were included in our data.

The rate of referrals varied among the 10 GHI clinics from 1.3 to 6.7 per 1,000 pediatric patients per year with the overall referral rate of .3%. As noted in Table 2, only 14% of all patients referred for chronic or recurrent infections (criteria 1,2,3,4) had adequate documentation in their outpatient charts. In fact, no patient charts met criteria for documenting chronic tonsillitis or chronic anterior cervical lymphadenopathy.

The most common reason for referral was for obstructive symptoms (criteria 5,6,7) totaling 56% of all referrals. Of those obstructed patients, 88% underwent tonsillectomies; 100% of the urgently obstructed patients had surgery.

An additional 40 patients (22%) were referred for "chronic or recurrent infection" but lacked complete documentation and were excluded as they did not meet the criteria. Of those 40, 32 (80%) had a tonsillectomy. (Some cases may have met the criteria but lacked documentation.) This surgical rate does not significantly differ from the surgical rate of 77% seen with patients referred for adequately documented chronic infection.

Four patients were referred for halitosis and/or tonsillar cryptic debris; two of these patients had surgery. Missing two to four weeks of school due to sore throats was the referring criteria in three patients, all of whom underwent surgery.

TABLE 1

Indications for surgery

1. Recurrent throat infection
    a. At least three episodes in each of three years, or five episodes in each of two years, or seven episodes in one year; and
    b. Each episode must have been characterized by one or more of the following:
        Oral temperature 101°F (38.3°C) or higher
        Enlarged (>2 cm) or tender, anterior cervical lymph nodes
        Tonsillar exudate
        Positive culture for group A beta-hemolytic streptococcus
    c. Apparently adequate antibiotic therapy must have been administered for proven or suspected streptococcal episodes; and
    d. Each episode must have been confirmed by examination and its qualifying features described in a clinic record at the time of occurrence.
2. Peritonsillar abscess.
3. Chronic (minimum six months) tonsillitis, persisting despite appropriate antimicrobial therapy.
4. Chronic (minimum six months) enlargement (> 2 cm) or tenderness of anterior cervical lymph nodes, persisting despite appropriate antibiotic therapy.
5. Nonurgent obstructive symptoms if tonsils very large, including:
    a. Stertorous or mouth breathing, with or without episodes of obstructive sleep apnea.
    b. Muffled, "hot potato" voice if child is at least six years old.
6. Upper airway obstruction apparently due to large tonsils or adenoids or both, and accompanied by evidence of alveolar hypoventilation or cor pulmonale.
7. Consistent interference with swallowing apparently due to tonsillar enlargement.

*Guidelines taken from the Children's Hospital of Pittsburgh T&A Study.

TABLE 2

Indications for surgery

	Referrals Meeting Criteria	(% of Total)	# of Referrals Who had Tonsillectomies	
1. Recurrent infection	13	(7%)	10	(77%)
2. Recurrent peritonsillar abscess	13	(7%)	10	(77%)
3. Chronic tonsillitis				
4. Chronic adenopathy	0		0	
5. Non-urgent obstructive symptoms	90	(50%)	80	(89%)
6. Urgent obstructive symptoms	7	(4%)	7	(100%)
7. Swallowing problems	3	(2%)	1	(33%)
Did not meet or could not find documentation of any above criteria	56	(31%)	33	(59%)
TOTALS:	182	(100%)	141	(77%)

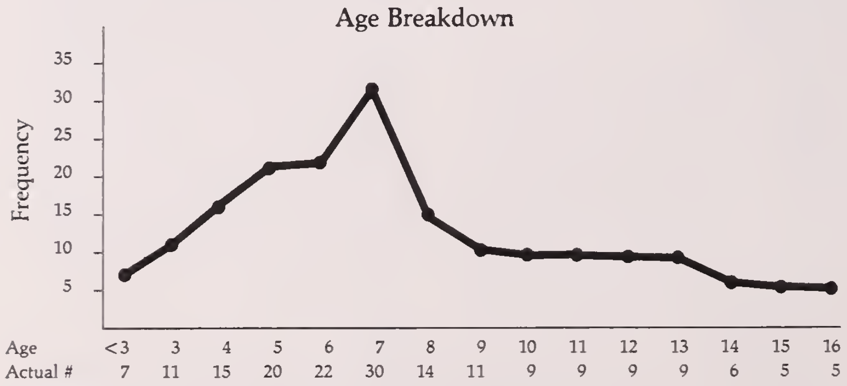

FIGURE — Age of patients referred to ENT for tonsillectomy or T&A.

After the first consultation by ENT, 141 (77%) patients had tonsillectomies. An additional 14 patients had a second consultation that resulted in surgery, for a composite number of 155 out of 182 or 85% surgical rate.

There was some variability between ENT groups as to the percentage of referrals sent to surgery (70-89%). ENT groups serving GHI clinics with the lower rate of referrals had a higher rate of surgery.

Five out of the seven children less than three years old underwent a tonsillectomy; two had sleep apnea, two were dysphagic, and one had recurrent upper respiratory infections.

The overall complication rate was 9.7%. Of the eight patients with postoperative hemorrhages (5.1%), four required readmission for one day. Three patients developed postoperative infections, one of whom required readmission. Four patients with severe postoperative pain and eustachian tube dysfunction were managed as outpatients.

Discussion

According to data in 1985, approximately one million adenotonsillectomies are performed in the U.S. each year at a cost of $375 million to $500 million, making T&A one of the most frequent operations performed.[3] For such a common and costly procedure, we know little about the physiology of this lymphoid tissue and the benefits of its removal.

In order to answer questions about its benefits, one needs to critically examine indications for tonsillectomy on a prospective basis. The Children's Hospital of Pittsburgh study has been attempting to do this.[1,4]

Many patients who met Bluestone's criteria were not included in this study because they were not referred for ENT evaluation. What happens to these patients who do not get tonsillectomies?

Bluestone found that patients who met his stringent criteria for recurrent throat infection were the most severely affected and probably were the exception.[1] In an editorial following this report, Dr. Hendley admonishes that "extrapolation of the findings to patients whose experience with throat infection is less extreme or less well documented is unjustified." He estimates that only one to two such severely affected patients would be seen annually by a pediatrician or family practitioner.[5] Dr. Bluestone did show that patients who met his criteria had less frequent throat infections for about two years after a tonsillectomy but then the differences became insignificant.[1]

It is still unclear from these studies which patients with chronic or recurrent infections would benefit the most; the more severely and frequently infected patients benefit for only two years. We need to see prospective data and follow-up on less severely affected.

Our study in an HMO looks both at the current medical referral practice in a closed medical system as well as the surgical experience in the Twin Cities. Of the seven chosen indications, obstruction was the most common and accounted for the highest surgical rate of all indication groups. The morbidity associated with sleep apnea and disturbed sleep in these obstructed patients probably warrants surgical rather than medical therapy.

Patients with recurrent or chronic infection were more difficult to document. Of the 66 patients referred with histories of recurrent or chronic infection, only 26 (39%) met surgical indications, but 52 of the 66 (79%) underwent surgery.

When one compares the surgical rate for infectious indications with adequate criteria (77%) versus inadequate criteria (80%), one has to question whether adequate documentation has any bearing on the surgeon's decision. However, with obstructive symptoms, the surgical rate was 88% with adequate documentation versus 6% without adequate criteria, reflecting the influence of adequate documentation on the surgical decision-making process.

It was also interesting to see that the overall surgical rate of 77% went up to 85% if one included patients who underwent surgery after a second consultation. One wonders if parental pressure on the primary care provider and consultant contributed to this increase or whether symptoms actually worsened. It is reported that histories of recurrent throat infections from patients and parents do not validly predict observed patterns of frequency of pharyngitis during prospective observations.[6]

Five of seven patients less than three years old underwent tonsillectomies. We did not investigate the medical follow-up of these patients. Almost all of these tonsillectomies were done for obstructive symptoms, and none of the children suffered complications. Neither Bluestone's nor the Minnesota Hospital Audit reported tonsillectomies in this age group.

The major postoperative complication of hemorrhaging occurred in 5.1% of GHI patients, which is comparable to 5.3% of the Minnesota Audit reported in 1980.[2]

Adequate information is the key to future studies of benefits and cost effectiveness. Nearly 53% of the hospital records in the Minnesota Audit failed to adequately document surgical justification. The GHI study reported here does better, with 31% either not meeting criteria or not adequately documented.

In a roundtable discussion with representative members of the ENT groups used in our study, the general consensus was that the consultants needed more concrete, written data from the referring physician, including documentation of pharyngitis with fever, enlarged or tender cervical nodes, exudate, throat culture results, snoring, obstructive apnea, response to medical therapy, and social impact on the child and family. With data from new prospective studies and referral information from the primary care provider, the otolaryngologist can make appropriate decisions as to which patient would most benefit from a tonsillectomy.

Acknowledgments

Thanks to the GHI Quality Assurance chart analysts for their review of study charts and to Lynda Michaelson for her secretarial support.

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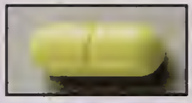

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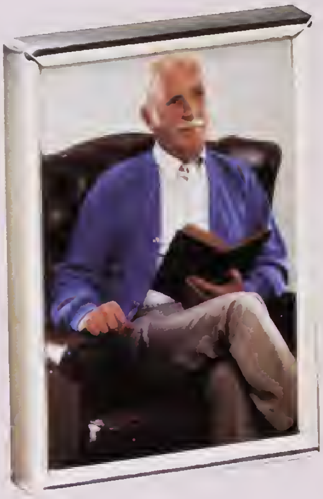

THOMAS G.
70, asthmatic. In the past, BP adequately controlled with 25 mg hydrochlorothiazide daily.

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- Unlike diuretics, ISOPTIN will not decrease serum potassium levels or elevate uric acid levels.
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PRECAUTIONS: Impaired Hepatic or Renal Function: Verapamil is highly metabolized by the liver with about 70% of an administered dose excreted in the urine. In patients with impaired hepatic or renal function verapamil should be administered cautiously and the patients monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacological effects (see OVERDOSAGE).

Drug Interactions: Beta Blockers: Concomitant use of ISOPTIN and oral beta-adrenergic blocking agents may be beneficial in certain patients with chronic stable angina or hypertension, but available information is not sufficient to predict with confidence the effects of concurrent treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities. Digitalis: Clinical use of verapamil in digitalized patients has shown the combination to be well tolerated if digoxin doses are properly adjusted. However, chronic verapamil treatment increases serum digoxin levels by 50 to 75% during the first week of therapy and this can result in digitalis toxicity. Upon discontinuation of ISOPTIN (verapamil HCl), the patient should be reassessed to avoid underdigitalization. Antihypertensive Agents: Verapamil administered concomitantly with oral antihypertensive agents (e.g., vasodilators, angiotensin-converting enzyme inhibitors, diuretics, beta blockers, prazosin) will usually have an additive effect on lowering blood pressure. Patients receiving these combinations should be appropriately monitored. Disopyramide: Disopyramide should not be administered within 48 hours before or 24 hours after verapamil administration. Quinidine: In patients with hypertrophic cardiomyopathy (IHSS), concomitant use of verapamil and quinidine resulted in significant hypotension. There has been a report of increased quinidine levels during verapamil therapy. Nitrates: The pharmacologic profile of verapamil and nitrates as well as clinical experience suggest beneficial interactions. Cimetidine: Two clinical trials have shown a lack of significant verapamil interaction with cimetidine. A third study showed cimetidine reduced verapamil clearance and increased elimination to 1/2. Anesthetic Agents: Verapamil may potentiate the activity of neuromuscular blocking agents and inhalation anesthetics. Carbamazepine: Verapamil may increase carbamazepine concentrations during combined therapy. Rifampin: Therapy with rifampin may markedly reduce oral verapamil bioavailability. Lithium: Verapamil may lower lithium levels in patient on chronic oral lithium therapy. Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no evidence of a carcinogenic potential of verapamil administered to rats for two years. Verapamil was not mutagenic in the Ames test. Studies in female rats did not show impaired fertility. Effects on male fertility have not been determined. Pregnancy (Category C): There are no adequate and well-controlled studies in pregnant women. ISOPTIN crosses the placental barrier and can be detected in umbilical vein blood at delivery. This drug should be used during pregnancy, labor, and delivery, only if clearly needed. Nursing Mothers: ISOPTIN is excreted in human milk, therefore, nursing should be discontinued while verapamil is administered. Pediatric Use: Safety and efficacy of ISOPTIN in children below the age of 18 years have not been established.

ADVERSE REACTIONS: Constipation 8.4%, dizziness 3.5%, nausea 2.7%, hypotension 2.5%, edema 2.1%, headache 1.9%, CHF/pulmonary edema 1.8%, fatigue 1.7%, bradycardia 1.4%, 3° AV block 0.8%, flushing 0.1%, elevated liver enzymes (see WARNINGS). The following reactions, reported in less than 1.0% of patients, occurred under conditions (open trials, marketing experience) where a causal relationship is uncertain; they are mentioned to alert the physician to a possible relationship: angina pectoris, arthralgia and rash, AV block, blurred vision, cerebrovascular accident, chest pain, claudication, confusion, diarrhea, dry mouth, dyspnea, ecchymosis or bruising, equilibrium disorders, exanthema, gastrointestinal distress, gingival hyperplasia, gynecomastia, hair loss, hyperkeratosis, impotence, increased urination, insomnia, macules, muscle cramps, myocardial infarction, palpitations, paresthesia, psychotic symptoms, purpura (vasculitis), shakiness, somnolence, spotty menstruation, sweating, syncope, urticaria. Treatment of Acute Cardiovascular Adverse Reactions: Whenever severe hypotension or complete AV block occur following oral administration of verapamil, the appropriate emergency measures should be applied immediately, e.g., intravenously administered isoproterenol HCl, levarterenol bitartrate, atropine (all in the usual doses), or calcium gluconate (10% solution). If further support is necessary, inotropic agents (dopamine or dobutamine) may be administered. Actual treatment and dosage should depend on the severity and the clinical situation and the judgment and experience of the treating physician.

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An assessment of comprehensive child health screening programs in Minnesota

Alan P. Bender, D.V.M., Ph.D; L. Ronald French, M.P.H., Ph.D.*; Rochelle E.R. Woolley, M.P.H.*; J. Michael Sprafka, M.S., M.P.H.*; Michael E. Moen, M.P.H.*; and Andrew G. Dean, M.D., M.P.H.*

The Minnesota Department of Health conducted an evaluation of two comprehensive child health screening programs in 1982. A random sample of 813 children with positive screening findings were followed through their medical and other health records to describe the types of children screened, specific screening findings, prevalence of findings, factors contributing to referral, and parental recall of screening results. More than 75% of Minnesota's public school children participated in a comprehensive health screening program by the time they were enrolled in kindergarten. The profiles of early and periodic screening and preschool screening were very different and the two programs should not be viewed synonymously. The prevalence of positive findings ranged from 3% for developmental conditions to 26% for general medical conditions in EPS programs and from 5% for eye conditions to 15% for dental findings in PSS programs. Controlling for the child's age, program, and type of screening finding, the existence of a family physician significantly increased the probability of referral from the screening program. Parental recall of screening results depended upon type of finding. Overall, approximately two-thirds of the parents could recall their child's screening results when interviewed two to nine months after screening.

The comprehensive health care program for children—Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT)—is based on a programmatic foundation of preventive health care and screening which lacks supporting consensus in the scientific community.[1] Mass screening for children has never been subjected to test by clinical trials, and many forms of child health screening have been advocated without supporting research.[2,3] The efficacy of comprehensive child health screening within the EPSDT Program is based on anecdotal and subjective data.[4] Existing child health screening programs, drawing much of their heritage from EPSDT, remain controversial and difficult to evaluate. At the same time, with the Omnibus Budget Reconciliation Act of 1981 and more limited funds available for Maternal and Child Health (MCH) activities, increased emphasis has been placed on accountability and priority-setting.[5,6]

Within this framework, the Minnesota Department of Health (MDH) evaluated two statewide childhood screening programs, a comprehensive child health program (EPS) and a preschool screening program (PSS).

Both EPS and PSS are state programs. Early and Periodic Screening, established in 1974, is administered by the Minnesota Department of Health and is designed to provide regularly scheduled comprehensive child health screening for children 6 months to 20 years of age. Preschool Screening, established in 1977, is administered by the Minnesota Department of Education with technical support provided by the MDH. Children are eligible for screening prior to entry into kindergarten and are usually screened between the ages of three and four.

Previous reviews of these programs in Minnesota were restricted to analyses of incomplete, administratively collected data, which provided information only on broad categories of screening findings, demographics of children screened, and whether a referral was given.[7]

Methods

Sample: The study was conducted during 1983 and included children screened during the 1981-82 school year in Minnesota. All children with a positive finding in a PSS or EPS program during the period September 1981 through June 1982 were eligible. Due to the lack of centralized lists of all Minnesota children screened or the subset of children with positive findings, cluster sampling procedures were used to select study samples.[8] The sampling frame consisted of all 54 EPS-provider agencies within the state. A random sample of these provider agencies was selected and then a random sample of the 377 PSS programs within selected EPS provider agencies was selected. An additional random sample of public school kindergarten children was selected from school districts participating in the study to determine the proportion of children screened by the time they were enrolled in kindergarten.

Data collection: Information for the study was obtained from three sources: 1) the child's screening form, 2) the child's medical or other health record (e.g., dental developmental), and 3) a telephone interview with the parent who accompanied the child to screening. The records of health professionals to whom the child was referred (and the records of the child's family physician if not the referral professional) were used to document screening findings and outcome of the referral process. These records are called validation records throughout the report. Parents of study subjects were interviewed to

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obtain demographic data, information on the parents' knowledge of the screening process, and written consent for validation records. To protect confidentiality, the initial contact with parents of children with positive findings was made by local PSS and EPS program coordinators.

Coding: A comprehensive procedure was developed for abstracting and coding information from medical, dental, and other validation records. Using the Basic Tabulation List from the 1975 Revision of the International Classification of Disease (ICD), a three-digit code was developed for classifying both the findings at screening and those from referral.[9] For analysis, the conditions found at screening and at referral were divided into six categories (Table 1). Further detail of the conditions included in the six categories is given in the Appendix.

TABLE 1
Screening and referral categories*

Category	ICD+ Code	Examples
Developmental problems	21	speech and language disorders, motor disorders, behavior problems
Diseases of the eye	23	refractive errors, strabismus
Diseases of the ear or impaired hearing	24	otitis media; partial or complete deafness
Diseases of the mouth	33	dental prophylaxis, diseases of the jaw, diseases of the teeth
Immunizations	57	all immunizations
Other medical conditions	1-56 (excluding above codes)	other infectious and parasitic diseases, nutritional problems, cardiovascular disease, diseases of the skin, congenital diseases

* Detail (by ICD Code) of conditions included in each category is given in the Appendix.
+ International Classification of Diseases (Basic Tabulation List)[9]

TABLE 2
Proportion (P) of parents recalling positive screening finding*

	Both Programs		PSS		EPS	
Conditions	P	95% CI+	P	95% CI	P	95% CI
Ears	.66	(.54-.78)	.67	(.51-.82)	.64	(.54-.74)
Eyes	.76	(.67-.86)	.79	(.69-.88)	.68	(.46-.90)
Immunization	.55	(.40-.69)	.57	(.38-.76)	.51	(.32-.70)
Other medical conditions	.47	(.38-.56)	.38	(.25-.51)	.55	(.47-.64)
Dental	.44	(.26-.63)	.47	(.26-.68)	.24	(.12-.36)
Developmental	.67	(.55-.79)	.70	(.57-.83)	.50	(.24-.76)

* Interviews were conducted 2 months to 9 months post screening.
+ Confidence Interval

To assess reliability of the abstracting and coding process and to evaluate potential observer bias, 40% of validation records were recoded by different coders. The recoding was done without knowledge of initial results. Overall, agreement between coding and recoding was 94%.

Analyses: Point estimation and confidence intervals for statewide estimates of screening evaluation parameters and logistic regression analysis of factors contributing to referral were developed using standard techniques.[8,10]

Results

Screening and referral: Statewide estimates of the proportion of Minnesota's public school children screened by EPS and PSS were made from a random sample of kindergarten children. Based on parental recall, 75% of Minnesota's metropolitan public school children participated in a child health screening program at least once by the time they were enrolled in kindergarten. The corresponding proportion for non-metropolitan children was 82%. The proportions for the metropolitan areas (Minneapolis, St. Paul, Duluth, and Rochester) were not statistically different from the proportions screened in non-metropolitan areas.

Parental recall of screening findings was evaluated by comparing results of parental interviews with screening records. Recall for positive results varied by type of finding (Table 2). Recall was best for developmental conditions and conditions of the eyes and ears. The poorest recall was for dental and other medical conditions.

Results of logistic regression analysis to assess the significance of factors related to referral appear in Table 3. Three factors—the program (EPS/PSS), the child's age, and presence of a family physician—significantly contributed to the probability of the child being referred for professional evaluation (controlling for effects of screening findings and other factors in Table 3). Although this result was statistically significant, it should be noted that the majority of children had a family physician. For EPS metro and non-metro areas, 82.1% and 88.8% of the children had a family physician; for PSS metro and non-metro areas, 87.4% and 97.0% of the children had a family physician. The chance of a child's being referred from EPS or PSS depended on the child's age. Younger children were more likely to be referred by PSS programs; older children were more likely to be referred by EPS programs (age x program interaction in Table 3). Marital status of the parents, mother's education (a commonly used measure of socioeconomic status), and region of the state had no effect on the child's receiving a referral.

Thirty-six percent of all children screened had at least one posi-

TABLE 3

Factors contributing to professional referral from EPS and PSS screening programs

Factor	Significance
Program (EPS/PSS)	.001
Child's age (years)	.006
Family M.D. (yes/no)	.001
Region (metro/non-metro)	.7
Marital status (yes/no)	.2
Mother's education (years)	.4
Age x program interaction	.001

TABLE 4

Distribution of number of positive screening findings in 813 children with positive findings

Number of Positive Findings	Absolute Frequency	Percent of Total
1	389	47.9
2	246	30.3
3	102	12.5
4	40	4.9
5 or more	36	4.4
TOTAL	813	100.0

tive finding. More than half (52.1%) of the children with positive findings had two or more positive (abnormal) screening results (Table 4); 90% of the children had three or fewer positive findings. The estimated prevalance of positive findings among all children screened in Minnesota by the two screening programs is given in Table 5. Of the 2,259 children screened, the prevalence ranged from 3% for developmental conditions in EPS to 26% for other medical conditions in EPS. Greater detail on the 1,527 positive findings in the 813 children is given in the Appendix.

Substantial differences between the two screening programs (EPS and PSS) were also apparent in three screening categories (Table 6). Proportionately more developmental conditions were found by PSS and more other medical conditions were found by EPS. (Although more dental conditions were found in PSS, the difference between programs may be due to a difference in screening forms.) Further analyses controlling for age did not produce major changes in the distribution of positive findings in the two programs. When positive screening results were analyzed for only three-, four-, and five-year-olds, the pattern of positive findings shifted slightly for EPS with a decrease in other medical findings and an increase in developmental findings.

Discussion

The findings of this study appear consistent with available data on comprehensive child health screening in Minnesota. Examining preschool screening for vision and hearing, the present study found a prevalence of 5% and 11%, respectively. Lombard reported prevalences for vision and hearing problems of 6% and 9% for the 1978-79 school year.[11] Hick estimated the prevalences of preschool vision and hearing defects at 6% and 9% based on the Minnesota Medical Association-sponsored screening program.[12] Comparisons with screening programs in other countries are difficult to make because of substantially different methodologies.[13-15]

Based on screening findings, age of children, and referral process, EPS and PSS have significantly different profiles. The findings that the existence of a family physician (controlling for age of child, program, and screening finding) improved the likelihood of referral begs the question whether the programs are achieving the goal of targeting the families that are underserved by the health care system. The finding that 20% of the children are never screened also raises concern over this issue and the factors that are associated with a child entering a screening program. Fortunately, it appears that socioeconomic status does not affect whether a child with a positive finding at screening is referred.

A broader concern is the significance of the conditions identified by child health screening programs.[12] To be effective, screening findings should be important, previously undetected conditions that are responsive to treatment. Based on available medical records, substantially less than half of the conditions were first found by the EPS and PSS screening programs.[16] Also, as would be expected, there was a substantial amount of over-referral. Approximately half of the referrals for developmental condi-

TABLE 5

Prevalence of positive screening findings among 2,259 children*

Condition	Both Programs	PSS	EPS
Ears	11%	11%	10%
Eyes	4%	5%	4%
Immunizations	8%	7%	12%
Other medical conditions	13%	8%	26%
Dental	12%	15%	5%
Developmental	5%	6%	3%

* If a child had more than one positive finding in a given category, only one finding was used to estimate prevalence.

TABLE 6

Distribution proportions (P) of all positive findings for given condition

Condition	Both Programs		PSS		EPS	
	P	95% CI+	P	95% CI	P	95% CI
Ears	.20	(.15-.25)	.22	(.15-.29)	.15	(.11-.20)
Eyes	.07	(.05-.09)	.08	(.05-.11)	.06	(.03-.08)
Immunization	.13	(.09-.16)	.11	(.07-.15)	.16	(.12-.20)
Other medical conditions	.28	(.20-.36)	.18	(.11-.25)	.51	(.44-.58)
Dental	.19	(.13-.25)	.25	(.18-.32)	.06	(.02-.10)
Developmental	.13	(.09-.18)	.16	(.11-.22)	.06	(.02-.09)
	1.00		1.00		1.00	

+ Confidence Interval

tions and conditions of the eyes and ears were not confirmed by available medical records.[16]

A detailed distribution of the conditions found at screening is in the Appendix. The overall importance of these conditions is not clear; and the questions about significance of screening findings raised as early as the 1950s by Yankauer et al. cannot be resolved by this study.[17-19]

Acknowledgment

The authors gratefully acknowledge the following assistance in design or execution of the study: Ronald Campbell, M.D., M.P.H., Section of Maternal and Child Health Technical Services, Minnesota Department of Health; Thomas J. Lombard, Ph.D., Minnesota Department of Education; Theodore C. Papermaster, M.D., Pediatrician, Minneapolis; John W. Washburn, Field Services Section, Minnesota Department of Health; program coordinators and administrators of the 36 screening programs.

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APPENDIX—Distribution of the 1,527 positive screening findings

Positive Finding	Number	(%)	ICD* Code
Viral diseases			04 (045-079)
Reseola Infantum	1	(0.06)	
Endocrine & metabolic disorders			18 (240-259, 270-279)
thyroid disorder	1	(0.06)	
overweight	24	(1.60)	
growth disturbance	23	(1.50)	
other metabolic disorders	1	(0.06)	
Nutritional deficiencies			19 (260-269)
dietary deficiencies	26	(1.70)	
Diseases of blood & blood-forming organs			20 (280-289)
low hematocrit	22	(1.40)	
Mental disorders			21 (290-319)
speech & language disorder	90	(5.90)	
motor (gross or fine) disorder	63	(4.10)	
other specific learning disturbance	22	(1.40)	
social or emotional problems	24	(1.60)	
developmental referral**	1	(0.06)	
Diseases of nervous system			22 (320-359)
seizure disorder	1	(0.06)	
Diseases of the eye			23 (360-379)
strabismus	12	(0.80)	
vision referral	95	(6.20)	
Other eye diseases	2	(0.13)	
Diseases of the ear & mastoid process			24 (380-389)
otitis externa	1	(0.06)	
serous otitis media	1	(0.06)	
deafness (partial or complete)	2	(0.13)	
wax in ear	18	(1.20)	
hearing referral**	186	(12.20)	
other ear diseases	98	(6.40)	
Rheumatic fever & rheumatic heart diseases			25 (390-398)
rheumatic fever and rheumatic heart disease	1	(0.06)	
Cardiovascular disease	6	(0.39)	26 (401-405)
Diseases of upper respiratory tract			31 (460-465, 470-478)
acute upper respiratory infections	5	(0.33)	
other upper respiratory diseases	1	(0.06)	
Other diseases of respiratory system			32 (466, 480-519)
acute bronchitis	1	(0.06)	
asthma	1	(0.06)	
Diseases of oral cavity			33 (520-529)
dental caries/diseases of teeth	35	(2.30)	
dental referral**	258	(16.90)	
other diseases of oral cavity	2	(0.13)	
Diseases of other parts of digestive system			34 (530-579)
hernia (inguinal or umbilical)	4	(0.26)	
other functional digestive disorders	1	(0.06)	
other diseases of digestive system	1	(0.06)	
Diseases of urinary system			35 (580-599)
congenital kidney, ureter, bladder or urethra disorders	1	(0.06)	
other urinary problems	3	(0.19)	
Diseases of male genital organs			36 (600-608)
diseases of male genital organs	4	(0.26)	
Diseases of female genital organs			37 (610-629)
Diseases of female genital organs	2	(0.13)	
Diseases of skin & subcutaneous tissue			42 (680-709)
diaper rash	5	(0.33)	
nail disease	1	(0.06)	
uticaria/eczema	6	(0.39)	
impetigo	1	(0.06)	
other diseases of skin	50	(3.30)	
Diseases of musculoskeletal system			43 (710-739)
musculoskeletal diseases	55	(3.60)	
Congenital anomalies			44 (740-759)
congenital anomalies of heart and circulatory system	2	(0.13)	
undescended testicle	13	(0.85)	
other congenital anomalies of musculoskeletal system	11	(0.72)	

(cont.)

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Appendix cont.

Positive Finding	Number	(%)	ICD* Code
Signs, symptoms and ill-defined conditions			46 (780-799)
signs and symptoms of central nervous system	2	(0.13)	
signs and symptoms of cardiovascular system	53	(3.50)	
signs and symptoms of genitourinary system	43	(2.80)	
general signs and symptoms	1	(0.06)	
signs and symptoms of GI system	3	(0.19)	
signs and symptoms of respiratory system	32	(2.10)	
other signs and symptoms	9	(0.59)	
Fractures			47 (800-829)
fracture of extremity	1	(0.06)	
Effects of foreign bodies			51 (930-939)
effects of foreign bodies	3	(0.19)	
Other injuries			55 (910-929, 958-959, 990-995)
other injuries	4	(0.26)	
Immunizations**			
immunizations	192	(12.50)	

* International Classification of Disease & Basic Tabulation List[9] with corresponding 3-digit ICD 7 codes

** Non-ICD category

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Allegation

Negligent follow-up care following an abortion.

Facts

The claimant, a 21-year-old female, presented to the clinic on Feb. 7, 1983, at which time her pregnancy was diagnosed. The patient was referred to Dr. X for an abortion. After the risks, benefits, and alternatives were discussed with the patient, the abortion was performed on Feb. 18, 1983. Because the pathology report revealed only decidual tissue with inflammation, Dr. X was concerned about a possible ectopic pregnancy or a continuing pregnancy. The patient was advised of this by letter on Feb. 23, 1983, and asked to come into the clinic as soon as possible for a follow-up examination. As requested, the patient presented to Dr. X on Feb. 28, 1983. Although Dr. X stated he recalled doing a pelvic exam, which was normal, the exam was not documented in the chart. Because a urine pregnancy test performed on that date was also negative, Dr. X believed that the patient's pregnancy had been terminated.

The patient next presented to Dr. X on March 24, 1983, with complaints of pelvic pain and vaginal discharge. The patient also reported that she had not had a menstrual period since the abortion. Examination revealed the uterus to be boggy, slightly enlarged, and somewhat tender. A diagnosis of endometritis was made and the patient was started on Keflex. On May 2, 1983, the patient phoned Dr. X stating that she still had not had a menstrual period since her abortion. Dr. X instructed the patient to come to the office for a urine pregnancy test. This was performed on May 16, 1983, and read as positive. An ultrasound was also performed and revealed a viable fetus. Because the ultrasound was performed at no charge to the patient, no films of the test were retained nor was a report of the findings dictated into the chart. The patient was referred to an abortion clinic for a repeat abortion at approximately 22 weeks gestation.

Disposition

This case settled for $2,100.

Reasons for Settlement

These standard of care issues and lack of documentation made this case difficult to defend: 1) Dr. X's failure to document that a pelvic examination was performed on Feb. 28, 1983, and to note his findings in the chart, 2) Dr. X's failure to perform a repeat pregnancy test on March 24, 1983, and 3) Dr. X's failure to instruct the patient to return for a follow-up visit after the diagnosis of endometritis was made.

Risk Management Comments

According to a Board Certified Obstetrician/Gynecologist, it is generally accepted follow-up to see a patient for a bimanual examination 1-2 weeks post uncomplicated curettage. At this visit the size of the uterus should be charted and any tenderness or masses noted. Final histologic reports and diagnosis can then be discussed with the patient along with plans for future pregnancies, interim contraception, etc.

In this case an ectopic or continuing intrauterine pregnancy was suspected when no trophoblastic tissue was found at curettage. When the patient was seen for a ten-day post abortion follow-up visit, no documentation was made as to uterine size or character, and a serum pregnancy test was not done. Although a serum HCG may give a false-positive, it will rarely give a false-negative as the urine test did in this case.

Findings on the March 24, 1983, visit should have prompted another pregnancy test to rule out mole or retained intrauterine pregnancy. In any event, the diagnosis of endometritis required the patient to be seen for a follow-up exam within a week to be sure the patient was responding to treatment.

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letters to the editor

Sexually Active Teens

As a nurse practitioner working in an adolescent health clinic, I am amazed and chagrined when, several times each month, a sexually active teen-age girl explains that she has discontinued her birth control pills upon her doctor's advice, because "the pills were making me tired," or "sick," or "messing up my body." Invariably, she also reports that she was *not* strongly advised to use alternative forms of contraception or to return for a follow-up appointment so her symptoms could be further evaluated. As a result, several of these girls have had subsequent unplanned pregnancies.

It is well recognized that the problem of adolescent pregnancy in the U.S. is uniquely pervasive and epidemic when compared with other industrialized nations. In fact, about 300 adolescents conceive in this nation each day, for a total of 1.1 million pregnancies each year.

The actual medical, educational, and social costs of these pregnancies have been estimated to total $16 billion annually. The less tangible societal and personal costs (related to premature and low-birth-weight infants; interrupted educations; burgeoning numbers of isolated, one-parent families headed by teen-age girls; limited options for future employment; and prolonged economic dependence) are equally damaging to our society.

Therefore, it is vital that physicians and other health care providers working with adolescents be prepared to deal realistically with the risk of unintended teen pregnancy. This means that, as professionals and, possibly as parents, we must look beyond our personal beliefs that it is usually inappropriate for teen-agers to be sexually active. We can support and encourage abstinence, but we must recognize that the vast majority of sexually active teens initiate sexual activity more than one year before using contraception. Denying or discouraging the use of contraception by teen-agers is not likely to change their behavior; it is more likely to place them at renewed risk of pregnancy. Oral contraceptives are prescription medications to be used under medical supervision, but all medically approved birth control methods are much safer than pregnancy for a teen-ager.

Adolescents can be effective contraceptors if they are given good information and close follow-up. The physician who provides sensitive and realistic information and advice to the sexually active adolescent will be part of the solution to the complex issue of teen-age pregnancy, rather than part of the problem.

Barbara A. Taylor, RN, M.P.H.
Nurse Practitioner
Roseville, MN

Dismissing a Physician in Mid-case

One of the better things a patient care committee can do is develop a hospital protocol by which a patient representative can facilitate a hospitalized patient's request to change doctors. We have done this at Unity Medical Center, and to our surprise, both physicians and patients have accepted this protocol. We found that none of the hospitals in the surrounding area had a medical, nursing, or social services staff protocol for such a contingency seven years ago when we developed the protocol and again when we checked last year.

A number of hospitals have asked us to let them know if we develop a doctor-patient transfer protocol, and it is in this spirit that I write this letter. After seven years' experience, we have found our protocol to smooth out what otherwise could be difficult transitions.

Typically, each year about six of our patients request another doctor. Unfortunately, most of the cases have concerned physicians whose skills were not immediately replaceable—usually secondary or tertiary specialists. Seldom have we had cases involving primary care physicians. For this reason, we needed an armor-clad protocol that would be accepted not only by the executive committee, but by department heads and the medical staff as a whole. At no time was the quality of care the issue in these cases. They all revolved around difficulties in communications or rapport between the doctor and patient.

One of our concerns was that if a patient's family or the nursing staff approved of one physician, but not another, we would receive inappropriate requests to change physicians. This did not occur. However, in committee discussions, we decided that we should not in any way recommend a single physician to replace the one being dismissed from the case. Instead, we submit at least two and preferably three physician names for selection by the patient or patient's family.

We felt risk management ramifications of not having a protocol outweighed any political difficulties we might have with the medical staff. Most of the cases have concerned shy people who were fearful of serious illness, and use of the protocol was usually suggested by a nurse or patient representative. We have been fortunate in this hospital; the patient representatives have been sensitive to the medical staff needs and their egos. Secondary consultants and tertiary specialists who become involved in these situations often have had to insulate themselves from emotions of their patients to maintain their own emotional integrity and objectivity, which sometimes interfered with doctor-patient communications and was misinterpreted by the patients or their families as a lack of caring. This perception can and does lead to malpractice claims. Having an accepted protocol to overcome these hitches has enhanced our patients' comfort and has defused risky situations for our attending staff.

We feel the *process* of developing a protocol of this nature is almost more important than the specifics of the protocol itself. Our own process resulted in the following protocol, which is now a part of Unity Hospital's Rules and Regulations: "PATIENT DISMISSES DOCTOR — When a patient makes it known in writing to the nursing staff that he/she wishes to dismiss a doctor, nursing is to contact the patient representative who will notify, if necessary, the chief of the appropriate clinical department, or in his/her absence the Chief of Staff, who will notify the physician being dismissed as soon as possible, and give the patient a choice of at least three (3) physician names whenever possible."

Another surprising outcome of this protocol is that often the doctor being dismissed from the case is relieved to be out of the situation. Personality conflict and rapport problems can cut both ways. Unspecified in the protocol is that the replacement doctor has to be willing to accept the case. Our medical staff has been cooperative, and this has not proven to be a problem.

In summary, our medical staff has developed a protocol for changing doctors in mid-case within the hospital upon request from a patient, patient's family, nursing staff, or patient representative. It is rarely invoked. However, it facilitates risk management and the environment for a healing relationship with our patients. We recommend that every hospital staff develop such a protocol. It will pay dividends in patient and staff comfort and help to defuse liability risk.

John R. Ragan, M.D.
Last Chair of Patient Care Committee,
Unity Medical Center, Fridley, MN

P.S. Many thanks to Marilyn Daughenbaugh, Patient Representative, Unity Medical Center, whose time and effort helped to develop this protocol.

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4-5 **Practice of Internal Medicine** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: William L. Nietz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2085.

6-8 **Minnesota Medical Association's 134th Annual Meeting and Scientific Program** Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

7 **Managing Quality in the Physician Office Laboratory** CME, University of Minnesota Medical School; Moos Tower, U of M, Minneapolis, Minnesota. CONTACT: Office of CME; Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

13-14 **Human Aging X: Transitional Care** CME, Medical School, University of Minnesota; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525

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18-19 **Investing in Perinatal Prevention: Profits for Families & Society** Great Plains Organization for Perinatal Health Care; Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: Mary McClung, 1100 South Euclid Avenue, Sioux Falls, South Dakota 57117-5039; (605) 333-7191.

19 **Gynecologic Oncology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

20 **Dermatology** CME; Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext 259.

20-22 **Current Concepts in Radiation Therapy** CME, Medical School, University of Minnesota; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Medical School, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

29-30 **Obstetrics-Gynecology Update** Park Nicollet Medical Foundation; Naegele Auditorium at Park Nicollet Medical Center, Minneapolis, Minnesota. CONTACT: Elaine Anderson, Park Nicollet Medical Foundation, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3703.

29-31 **Surgery for the Primary Care Physician** CME, Medical School, University of Minnesota; Grandview Lodge, Brainerd, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

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4-5 **Unstable Coronary Lesions** CME, University of Minnesota Medical School; Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

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22-26 Team Management of Diabetes Mellitus International Diabetes Center, Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

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JULY 1987

6-10 Team Management of Diabetes Mellitus International Diabetes Center, Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

8-11 Orthopaedic Surgery: Knee CME, University of Minnesota Medical School; Minneapolis Marriott, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

15 Emergency Medicine CME, Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, MN 55746; (218) 262-4881, Ext. 259.

15-19 Myocardial Infarction: The First Months Abbott Northwestern Hospital; Grand View Lodge on Gull Lake, Brainerd, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

JULY 30-AUG 1 Fourth Annual St. Paul-Ramsey Trauma Conference St. Paul-Ramsey Medical Center; Fox Hills Resort, Mishicot, Wisconsin. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

AUGUST 1987

18 Urology CME, Mesabi Regional Medical Center, Hibbing; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

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Family Practice and Internal Medicine: Huron Clinic Foundation, Limited is a multispecialty group serving a trade area of approximately 50,000, has a practice situation where several members of the staff are near retirement and a ready practice would be available. A new member can start with NO CASH Investment, first-year salary guarantee, and many benefits, including malpractice insurance and a pension plan. The clinic is located next to a 120-bed JCAH-accredited regional hospital with excellent diagnostic and care capabilities. The clinic is currently pressed for a Board Certified/Board Eligible physician to take over a practice. Call collect (605) 352-8691 or contact any staff member or the clinic manager at the Huron Clinic, PO Box 822, Huron, South Dakota 57350. *6-10/87

Madison, a western Minnesota community of 2,500 with clinic of two, seeks at least one more Family Practitioner immediately to join active practice. Guaranteed salary plus fringe benefits. Practice growing. Good potential. Must be personable, aggressive, and like rural living. Inquiries to: Paul Tolzmann, M.D., c/o Madison Clinic, (612) 598-7531, or Richard Range, c/o Madison Hospital, (612) 598-7556. 1-5/87

General Internist: Join a well-established, multispecialty practice of family practice, general surgery and internal medicine. Take over an exciting internal medicine practice. Physicians are committed to internal medicine as an integral part of the practice. Located in western Wisconsin, 30 miles from Minneapolis/St. Paul, and close to the beautiful lake region. Modern and updated hospital facilities. Send CV to: Jim Miller, Administrator, New Richmond Clinic, 821 West 8th Street, New Richmond, Wisconsin 54017, or call (715) 246-6911. 2-6/87

Mork Clinic, a multispecialty group in Anoka, is looking for a family practitioner to join our staff. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 6-10/87

Lakehome For Rent Spider Lake, Hayward, Wisconsin. Relax and revive! Fully furnished two-story A-frame with four bedrooms. Available annual to weekend basis; (612) 340-0388. 1-5/87

Physician Needed to provide primary care. Position is with a 637-bed regional treatment center that provides treatment for individuals with chemical dependency problems/psychiatric and developmental disabilities. Competitive salary with excellent fringes including paid malpractice insurance. Limited call. Located 90 miles west of Minneapolis/St. Paul with abundant outdoor recreational opportunities. Excellent schools. Call or write (include CV and references): Larry Olson, M.D., Medical Director, Willmar Regional Treatment Center, Willmar, Minnesota 55201; (612) 231-5100. An equal opportunity employer. 1-5/87

Cincinnati, Ohio - Physician to take over a well-established solo practice in a beautiful small community that is only 30 minutes from downtown Cincinnati. Sale price is favorable and doctor will introduce to patients. The office is located in a beautiful old home with off-street parking. Growth potential for a partnership is excellent. Family practitioners and internists encouraged to call. Phone: (812) 537-4888. 1-5/87

Family Practitioner to join a multispecialty group comprised of family practitioners, internists, general surgeons, and a pediatrician. Located 75 miles north of Duluth, the area offers a wide variety of outdoor sporting activities. The medical community service area is 30,000. The school system is excellent. Modern 6-year-old hospital. Competitive first-year salary and comprehensive benefit package. Contact: Bayard T. French, M.D., Adams Clinic, PA, 2229 East 3 Avenue, Hibbing, Minnesota 55746; (218) 262-3425. 3-7/87

Ob/Gyn, Orthopedic Surgeon Board certified or eligible to join 15-member group in progressive northwestern Wisconsin community. Modern, well-equipped hospital located adjacent to our facility. Close to Minneapolis, Eau Claire, and Duluth, the Rice Lake area offers excellent educational, religious, and community activities in addition to exceptional sports, hunting, fishing, and recreational opportunities. For more detailed information regarding our group, please contact: Mark T. Nymo, M.D., Indianhead Medical Group, 1020 Lakeshore Drive, Rice Lake, Wisconsin 54868 (715) 234-9031. 1-5/87

St. Paul Internists, PA Has openings for a pulmonary intensivist and invasive cardiologist, immediately, June 1987, and June 1988. Please contact: Frank J. Indihar, M.D., FACP (612) 224-4737. (R)

Family Practitioner wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candi-

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date will join the current Family Practice Department of 20 physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or call (612) 780-7032. 2-6/87

Family Physician sought to join a group of five certified family physicians practicing in a city of 3,500 population in the beautiful Minnesota River Valley. New hospital with new attached clinic and satellite locations with the very latest in equipment. Very busy, growing practice. Contact: D. Carter M.D., (612) 564-2511 (office), (612) 564-4409 (home), 295 Tenth Avenue, Granite Falls, Minnesota 56241. 1-5/87

Positions Available for male/female locum tenes and family practice physician with special interest in women's medical care to join a multispecialty clinic in the northern suburbs of Minneapolis. Please call: Jeannine Schlottman, Administrator (612) 786-2700. 2-6/87

Two Board Certified Family Practitioners Needed for affiliate clinic of Willmar Medical Center. Excellent fringe benefits. Send CV to: Norris M. Anderson, M.D., 101 Willmar Avenue SW, Willmar, Minnesota 56201-3591. 3-7/87

180-Member Multispecialty Group Practice has immediate openings for Board Certified/Board Eligible family practice physicians. Various practice locations are available throughout a regional service area in eastern North Dakota and northwestern Minnesota. Family Practice Department is currently largest department within the multispecialty group. Send CV and references to: John Weir, Associate Administrator, Dakota Clinic, Ltd., PO Box 6001, Fargo, North Dakota 58108. 3-7/87

Family Practitioners: The Monroe Clinic, located 40 miles south of Madison, has openings in New Glarus and Brodhead, Wisconsin, satellites and a new clinic in northern Illinois. Excellent benefits. Partnership available. Resources of 55-physician multispecialty group. Contact: Robert H. Rieder, Administrator, The Monroe Clinic, 1515 Tenth Street, Monroe, Wisconsin 53566; (608) 328-7381. 3-7/87

Orthopaedic Surgeon: Well-established solo Board Certified orthopaedic surgeon is looking for another BC/BE surgeon who wants to live in a smaller community and practice quality general orthopaedics. The Northern Pines Orthopaedic Clinic is a newly remodeled, 4000 sq. ft. facility with in-house X-ray and PT. Office located one mile from well-equipped JCAH-approved 100-bed hospital. Practice serves county of 40,000 and parts of three adjacent counties. Grand Rapids is located in the heart of Minnesota's four-season vacationland, offering nearby lakes, excellent boating, fishing, and hunting, two ski resorts, three golf courses, large YMCA, and more. The community has a solid industrial base and one of the better school systems in the state. If interested in an exceptional practice opportunity in a family-oriented community, send CV to: J.W. Burnett, M.D., Northern Pines Orthopaedic Clinic, 111 Golf Course Road, Grand Rapids, Minnesota 55744.(R)

Family Practice: Six-person family practice group in Mora, Minnesota, seeks associate. Located 65 miles north of the Twin Cities in the heart of fishing and hunting country, the practice offers an excellent opportunity for professional and personal growth with expanding practice, comprehensive salary and benefit package. Contact: Larry Brettingen, M.D., Mora Medical Center, Ltd., 224 — 7th Street, Mora, Minnesota 55051, or call (612) 679-1340. 3-7/87

Psychiatrist Our exclusive client, a rapidly growing national organization committed to providing high-quality, cost-effective patient-oriented mental health and substance abuse services, seeks Adult Psychiatrist (BE/BC) for full-time staff opening in the Twin Cities. Position involves direct services, supervision, and consultation in a multidisciplinary clinical setting. Professional team includes Psychiatrists, LPs, LCPs, CCSWs, Psychiatric Nurses, and Certified Chemical Dependency Counselors. Salary to $100,000 (DOQ/DOE) plus benefit package of 20% of base salary plus bonus potential of up to 10% plus negotiable relocation expenses plus client organization will pay our agency service fee. If you think that you'd enjoy the freedom and independence of private practice with none of the financial risks, total personal and professional satisfaction, and highly attractive hours, please write or call collect in confidence on Job #3023 at: (612) 926-6584, Jerry Neren, Physician Recruiter, MedSearch Corp., Southdale Medical Building, 6545 France Avenue South, Edina, Minnesota 55435. 1-5/87

Family Practice Physician: Ramsey Clinic, a University-affiliated, multispecialty group practice in St. Paul, Minnesota, has an immediate opportunity for a family practice physician. Your responsibilities would include general family medicine, including obstetrics, along with an ideal opportunity to be involved in academic activities within the Department of Family Medicine at St. Paul-Ramsey Medical Center. This position is available at one of our suburban St. Paul satellite clinics. For immediate consideration, please send your CV in confidence to: David J. Mersy, M.D., Satellite Medical Director, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101. An Equal Opportunity Employer. *1-5/87

Senior Physician: Non-tenured full-time academic position. Rural Physician Associate Program (U of M) is seeking a Board Certified family physician licensed to practice medicine in Minnesota to teach third-year medical students located in rural Minnesota. Minimum requirements: board certified in family practice; licensed to practice medicine in Minnesota; 5 years' experience supervising and teaching medical students; M.D. and M.S. or M.A. in computer applications in medicine; experience in teaching clinical medical interviewing to medical students. Contact: Dr. John Verby, Director, Rural Physician Associate Program, Box 81 UMHC, University of Minnesota, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 624-3111. The University of Minnesota is an equal opportunity educator and employer and specifically invites and encourages applications from women and minorities. 1-5/87

Pediatrician, BC/BE, to join dynamic staff of aggressive 99-bed community hospital. Salary guarantee and other incentives. Quality lifestyle in economically diversified community less than one hour from Minneapolis or Mayo. Call: (507) 332-2961 (9 a.m. — 10 p.m.) or write Smith, Orr and Associates at 1124 Parshall Street, Faribault, Minnesota 55021. *1-5/87

Urologist, BC/BE, to join dynamic staff of aggressive 99-bed community hospital. Salary guarantee and other incentives. Quality lifestyle in economically diversified community less than one hour from Minneapolis or Mayo. Call: (507) 332-2961 (9 a.m. — 10 p.m.) or write Smith, Orr and Associates at 1124 Parshall Street, Faribault, Minnesota 55021. *1-5/87

Radiologists Needed: Progressive 5-physician group is seeking two radiologists to join its expanding practice in Upper Midwest. One radiologist will assist the group in providing services to a large hospital and large multispecialty clinic practice. Experience in all modalities is essential. The second radiologist will provide general radiography, mammography, and ultrasound for several small rural hospitals. Both positions offer attractive compensation and benefits along with the opportunity to practice high-quality medicine. Submit CV and cover letter explaining expectations to: Minnesota Medicine (806), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 2-6/87

Family Practice in St. Croix River Valley: Family practice group seeking BE/BC for full range of family medicine. Good specialty support, progressive community hospital, diverse patient population. Opportunity for country living with 20-minute access to Twin Cities. Guaranteed salary and benefits plus incentive plan. Call Dr. Bob Stoy (612) 436-7860. 2-5/87

Pilot City Health Center, a multispecialty community health center in the near north side of Minneapolis, has a current opening for a .7 FTE position for a Board-Certified internist or family physician. Broad patient base. Competitive salary. Regular hours. Professional fellowship. Call: Dr. Martha Anderson, Medical Director, (612) 348-4600. 2-5/87

Emergency Medicine: Central Minnesota Trauma Center seeking full-time BE/BC EM physician to join group of EM boarded physicians. Competative salary and excellent fringe benefit package. For further information contact: David L. Frederickson, M.D., Chief, Dept of Emergency Medicine, St. Cloud Hospital, 1406 6th Avenue North, St. Cloud, Minnesota 56301 or call (612) 255-5657. 3-6/87

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 6-9/87

Pediatrics — Southeastern Wisconsin: Large multispecialty group located near Milwaukee is seeking a fourth BE/BC pediatrician. Competitive salary, excellent fringe benefits. Address inquires and CV to: Administrator, PO Box 427, Menomonee Falls, Wisconsin 53051. 2-5/97

Staff Psychiatrist, Duluth: Position now available in community mental health center. Join seasoned multidiscipline staff providing variety of child adult services. Share coverage with one other psychiatrist. Good salary and benefit package. Excellent working conditions and environment. Contact: Director, Human Development Center, 1401 East First Street, Duluth, Minnesota 55805; (218) 728-4491. Equal Opportunity Employer. 2-5/87

Internal Medicine: General BC/BE needed to associate with a solo practitioner located near Dallas. Excellent income potential and fringe benefits. Send CV to: ICCB, PO Box 835973, Richardson, Texas 75083-5793. 2-5/87

General Surgeon BE Available August 1987. Would like to stay in Twin Cities area. Contact: Steven T. Mestitz, M.D., Hennepin County Medical Center, Department of Surgery, 701 Park Avenue South, Minneapolis, Minnesota 55415 (612) 347-2121. 2-5/87

General Surgeon needed to join or work independently with two busy family practice groups in southeast Minnesota. GYN surgery and general practice experience preferred but not essential. Lake City is 30 minutes north of Rochester, 1 hour from St. Paul, and offers year round recreational activities on Lake Pepin and surrounding areas. Excellent benefits and earning potential. Available immediately. Contact: Gary Feigal, M.D., or Frank Thorngren, M.D., Lake City Clinic, PA, 303 South Washington, Lake City, Minnesota 55041; (612) 345-3318. 2-5/87

Ophthalmology, Southeastern Wisconsin: Large multispecialty clinic located near Milwaukee is seeking a second BE/BC ophthalmologist. Non-surgical orientation preferred. Excellent salary and fringe benefits. Interested parties please send inquiries and CV to: Joe Scholl, Mgr., Physician Recruitment, PO Box 427, Menomonee Falls, Wisconsin 53051. 2-5/87

General Internist/Full-Time position with a growing multispecialty group involved in both prepaid and fee-for-service practice. Group ventures include 24-hour priority care center and a development of satellite offices. Internal med practice approximately 50% primary care. An excellent opportunity to grow in an economically dynamic Northeastern Indiana community. Salary and full benefit package. Contact: M.G. Hawkins at 3301 Lake Avenue, Fort Wayne, Indiana 46805 (219) 422-8487. 2-5/87

Family Practice: to join group of 10 board-certified family physicians. Three offices located in northwest suburbs of Minneapolis. Guaranteed first-year salary plus excellent benefits. Contact: Diane Shuck, M.D., (612) 476-6776 or 537-8405; Marie Hanauska, 537-8475; or write 5810 42nd Avenue, Robbinsdale, Minnesota 55411. 6-9/87

Twenty-nine Physician Multispecialty Clinic located in desirable east central Wisconsin location is seeking Board Certified or Board Qualified orthopedic surgeon to round out its services. Lab, X-ray, excellent hospital. Liberal guarantee and benefits. If interested contact: D.F. Sweet, M.D., Fond du Lac Clinic, S.C., 80 Sheboygan Street, Fond du Lac, Wisconsin 54935. (R)

Staff Psychiatrist: An opening exists for a general psychiatrist with Hennepin Faculty Associates. Salary and benefits are generous. Requirements are: Board eligibility, Minnesota licensure, and potential for appointment in the Department of Psychiatry at the University of Minnesota. Position would be largely involved with in-patient care of acutely ill patients at Hennepin County Medical Center, and/or Metropolitan Medical Center. This would be in association with over a dozen other full-time psychiatrists engaged in clinical care, teaching, research, and forensics. Contact: William W. Jepson, M.D., Chief of Psychiatry, Hennepin County Medical Center, 701 Park Avenue South, Minneapolis, Minnesota 55415; (612) 347-5764. (R)

Sathe & Associates Executive Search Firm is currently seeking physicians for positions locally and nationally. Explore new opportunities with a medical professional who is discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write: Liz Johnson: Sathe & Assocaiates, Inc., 5821 Cedar Lake Road, St. Louis Park, Minnesota 55416; (612) 546-2100 (R)

Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

Medical Practice Sales and Appraisals: We specialize in the valuation and selling of medical practices. If interested in buying or selling a medical practice, contact our Brokerage Division at The Health Care Group, 400 GSB Building, Bala Cynwyd, Pennsylvania 19004; (215) 667-8630. (R)

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

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J-6138 January 1986

News from DISTA about a new dosage form of cephalexin

ANNOUNCING NEW

Keflet™ TABLETS

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All the advantages of cephalexin in a convenient tablet form

- Backed by over 15 years of clinical experience
- Smaller tablet is specially shaped and coated for easier swallowing
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- Tablet dosage form may be appreciated by patients of all ages

NEW Keflet Tablets are available as:

250-mg Tablets

500-mg Tablets

Keflet is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-sensitive patients.

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Brief Summary. Consult the package literature for prescribing informati

Indications and Usage: Keflet™ Tablets (cephalexin, Dista) are indicate for the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Respiratory tract infections caused by *Streptococcus pneumoniae* and group A β hemolytic streptococci (Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever Keflet is generally effec- tive in the eradication of streptococci from the nasopharynx, howeve substantial data establishing the efficacy of Keflet in the subsequent prevention of rheumatic fever are not available at present.)

Otitis media due to *S pneumoniae, Haemophilus influenzae,* staphylococci, streptococci, and *Neisseria catarrhalis*

Skin and skin-structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli, P mirabilis,* and *Klebsiella* sp

Note—Culture and susceptibility tests should be initiated prior to and during therapy Renal function studies should be performed when indicated

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED, CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN SENSITIVE PATIENTS

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES

There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and the cephalosporins. Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously. No exception should be made with regard to Keflet

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile* Other causes of colitis should be ruled out.

Usage in Pregnancy—Safety of this product for use during pregnancy has not been established

Precautions: *General*—Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended

Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

As a result of administration of Keflet, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis

Usage in Pregnancy—Pregnancy Category B—The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals. Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed

Nursing Mothers— The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose; the drug reached a maximum level of 4μg/mL, then decreased gradually, and had disappeared 8 hours after administration. Caution should be exercised when Keflet is administered to a nursing woman.

Adverse Reactions: *Gastrointestinal*—Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment Nausea and vomiting have been reported rarely The most frequent side effect has been diarrhea It was very rarely severe enough to warrant cessation of therapy Dyspepsia and abdominal pain have also occurred. As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely

Hypersensitivity— Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed. These reactions usually subsided upon discontinuation of the drug Anaphylaxis has also been reported.

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache. Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported

PV 2211 DPP [111786]

Additional information available to the profession on request from

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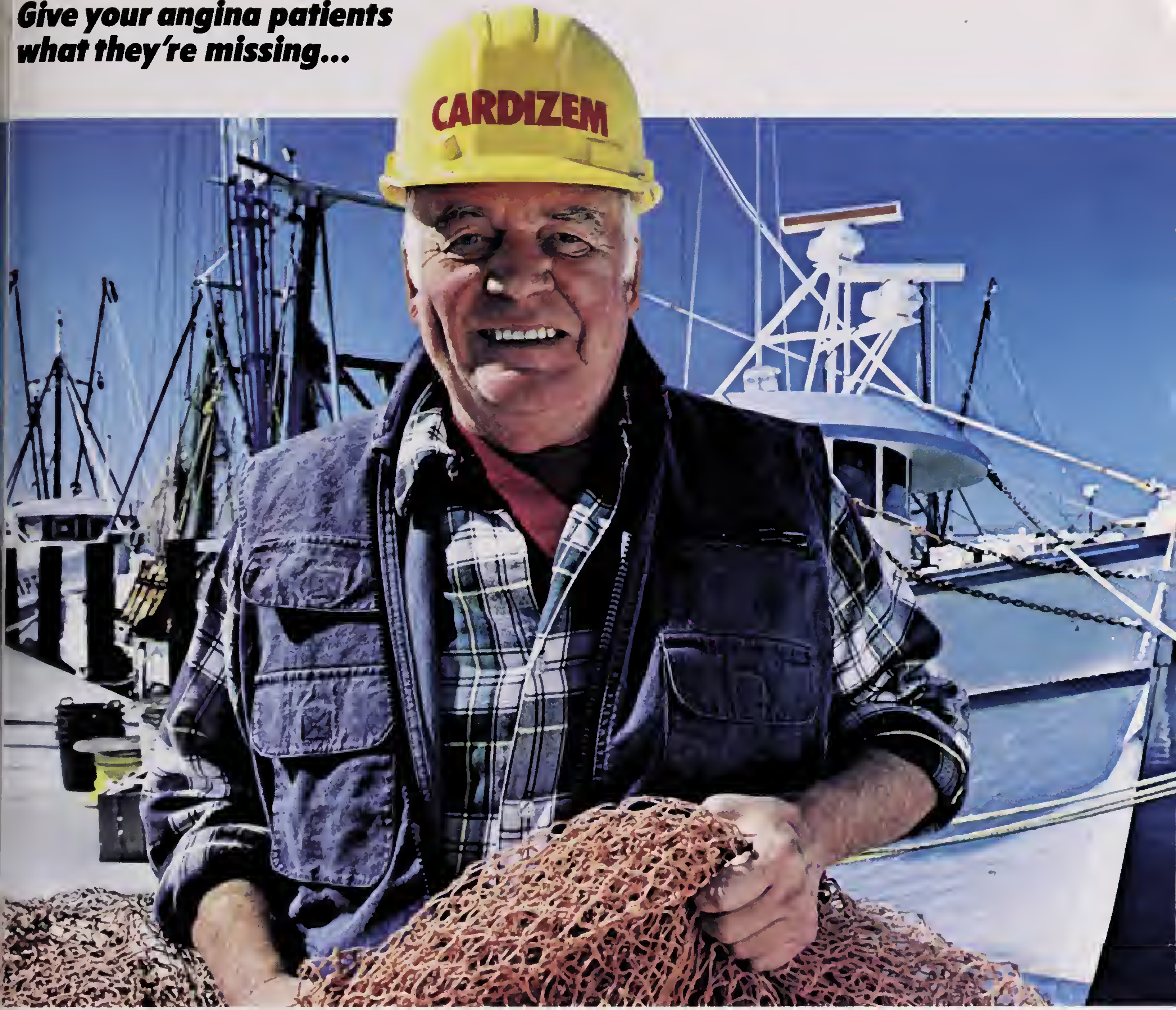

CARDIZEM®: FEW SIDE EFFECTS
diltiazem HCl/Marion

90 mg GREATER DOSAGE FLEXIBILITY
NEW 120 mg

- ***Antianginal action includes dilatation of coronary arteries, a decrease in vascular resistance/afterload, and a reduction in heart rate***
- ***Proven efficacy when used alone in angina[1]***
- ***Compatible with other antianginals[2,3]****
- ***A safe choice for angina patients with coexisting hypertension, asthma, COPD, or PVD[4,5]***

***See Warnings and Precautions.**

Please see brief summary of prescribing information on the next page.

CARDIZEM® diltiazem HCl/Marion FEW SIDE EFFECTS IN ANTIANGINAL THERAPY

60 mg tid or qid

Brief Summary
Professional Use Information

CARDIZEM®
(diltiazem HCl) 30 mg and 60 mg Tablets

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).
   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury.** In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.

Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope
Nervous System:	Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor
Gastrointestinal:	Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase
Dermatologic:	Petechiae, pruritus, photosensitivity, urticaria
Other:	Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established. Issued 7/86

See complete Professional Use Information before prescribing.

References: 1. Pepine CJ, Feldman RL, Hill JA, et al: Clinical outcome after treatment of rest angina with calcium blockers: Comparative experience during the initial year of therapy with diltiazem, nifedipine, and verapamil. Am Heart J 1983; 106(6):1341-1347. **2.** Shapiro W: Calcium channel blockers: Actions on the heart and uses in ischemic heart disease. Consultant 1984;24(Dec):150-159. **3.** Johnston DL, Lesoway R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris: A placebo-controlled, double-blind, randomized, crossover study. Am J Cardiol 1985;55:680-687. **4.** Cohn PF, Braunwald E: Chronic ischemic heart disease, in Braunwald E (ed): Heart Disease: A Textbook of Cardiovascular Medicine, ed 2. Philadelphia, WB Saunders Co, 1984, chap 39. **5.** Schroeder JS: Calcium and beta blockers in ischemic heart disease: When to use which. Mod Med 1982;50(Sept):94-116.

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Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

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Max Seham Student Award

The Max Seham Committee has awarded the 1st Annual Max Seham Student Award to Mr. Greg Plotnikoff for 1987. This award of $500.00 to Mr. Plotnikoff, a 2nd year medical student, is in recognition of his efforts on behalf of the Biomedical Ethics Student Committee at Biomedical Ethics Center. The Max Seham Committee noted that Mr. Plotnikoff has exemplified the ideals of Dr. Max Seham, a well-known and revered pediatrician in whose honor the fund was established by his friends. Dr. Seham had always been interested in broad social-economic-philosophic concepts of medicine.

For further information concerning application for 1988 and requirements, please inquire:

Dr. William Krivit
Chair of Max Seham Committee
Professor of Pediatrics
Box 477 UMHC
Room 122-A – Phillips-Wangensteen Bldg.

Deadline for 1988 award is December 31, 1987.

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Family Practitioner, General Internist, and General Surgeon to join 8-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

Suburban FP Group —SHARE affiliate—seeks associate to service rapid practice growth. Competitive salary and benefits. Unique opportunity to establish your practice. Contact: Gloria M. Vierling, Sundance Medical Clinics, Ltd., 323 Naumkeag Street, PO Box 9, Shakopee, Minnesota 55379; (612) 445-6440. (R)

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Orthopedic Surgeon Board Certified/Board Eligible to join an existing one-physician orthopedic department in a 24-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

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Urologist Physician Board Certified/Board Eligible to join 24-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

Internal Medicine Physician Board Certified/Board Eligible to join 24-physician multispecialty group in Winona, Minnesota, with existing 9-physician internal medicine department. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-5/87

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Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients. (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving).

> ***Usage in Pregnancy:* Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).
Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. When tricyclic antidepressants are used concomitantly with cimetidine (Tagamet), clinically significant effects have been reported involving delayed elimination and increasing steady state concentrations of the tricyclic drugs. Concomitant use of Limbitrol with other psychotropic drugs has not been evaluated, sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.
Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.
The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:
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Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.
Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.
Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.
Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.
Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.
Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.
Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion.
Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.
Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.
Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol DS (double strength) Tablets, initial dosage of three or four tablets daily in divided doses, increased up to six tablets or decreased to two tablets daily as required. Limbitrol Tablets, initial dosage of three or four tablets daily in divided doses, for patients who do not tolerate higher doses.
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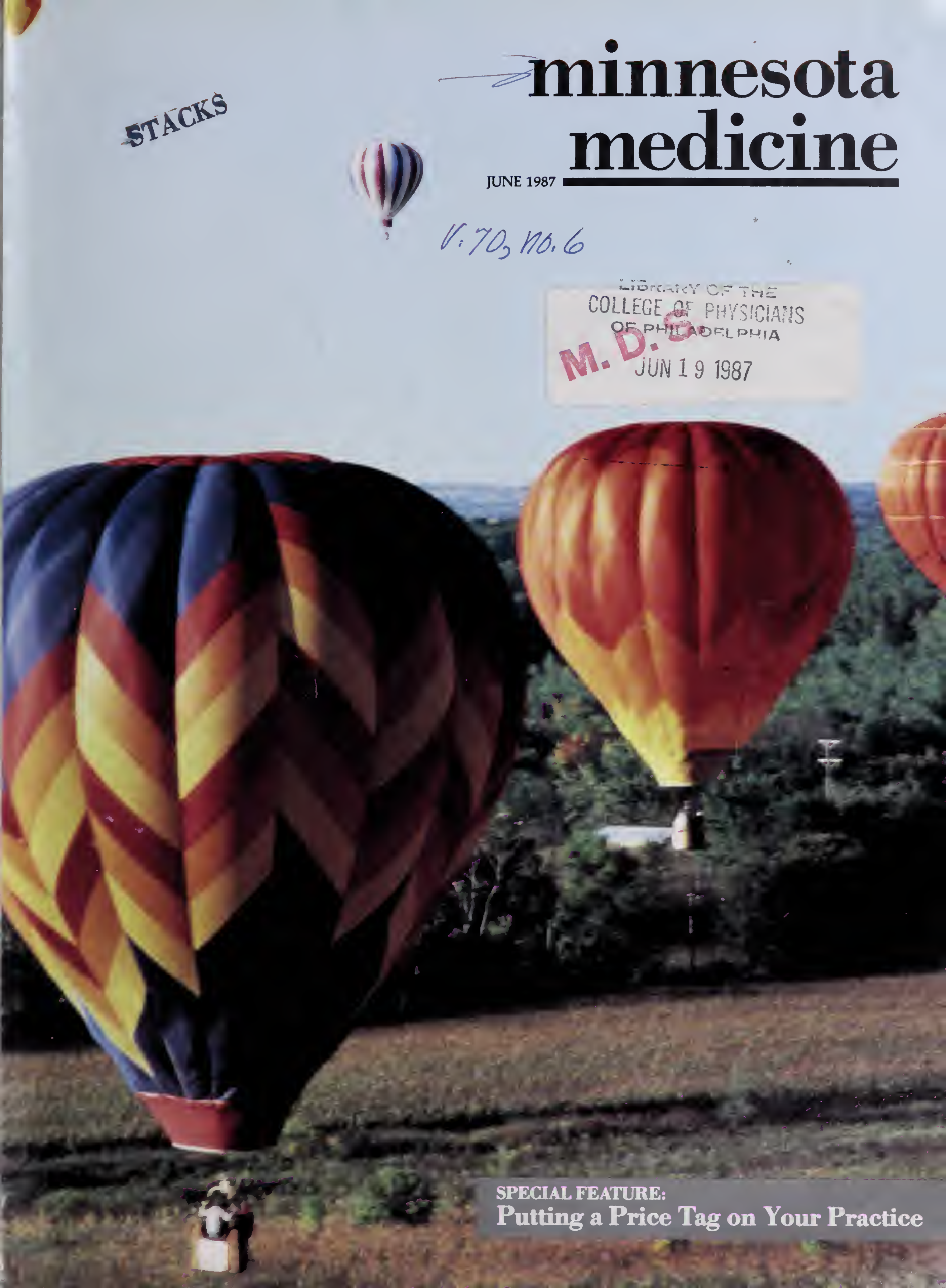

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Authors: Send manuscripts, subscriptions and communications for consideration to MINNESOTA MEDICINE, 2221 University Avenue SE, Suite 400, Minneapolis, MN 55414, Telephone (612) 378-1875.

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Cover Photograph

Summer Parade

Joseph H. Kandiko, M.D., took the cover photograph from the deck of his home in Chaska. A balloon race from Shakopee's Valleyfair, heading across the Minnesota River Valley, surprised him one summer's morning. He used a Nikon FM with a telephoto lens to capture the photo on Kodachrome 64 film.

Dr. Kandiko is a family practitioner with Crossroads Medical Centers and is chief of staff at St. Francis Regional Medical Center in Shakopee.

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president's letter

Changing Times

The decade of the '80s is a time of profound change for those of us involved in health care, and especially for physicians. We have witnessed increasingly rapid change in just the last two years. But despite technological improvements and other progress, the economic engine of the health care machine is suffering from fuel starvation caused by excessive regulation. Because the MMA has a large membership of energetic, intelligent, and active physicians, we have the means of motivating and organizing individual practitioners to take full advantage of the synergy that group activity creates. It is definitely a challenge for all of us in the MMA to survive and thrive, but because of our strong professional association, no physician need stand alone. Most critical in health care today is the need for physicians to work together to preserve quality care. The sharp curtailment of health care funds makes this a central issue. Three aspects of health care funding stand out: the rationed health care dollar; the loss of physician control of the health care dollar; and the increasing level of competition between physicians, health plans, and institutions.

In the late 1970s economic forecasters predicted today's difficulties with Medicare and its reimbursement system. One example of a cost containment program is the New Jersey prospective payment plan, which was inaugurated on an experimental basis in the late 1970s. The plan paid hospitals by certain diagnostic-related groups. This, in effect, limited the amount of money available to New Jersey health care institutions and forced a fundamental change in the way health care was delivered. The result was a de facto rationing of health care.

The escalating cost of health care delivery has motivated the government, health care institutions, business, and third-party payers to become more directly involved in the physician-patient relationship. Consequently, layer after layer of bureaucracy siphons off dollars intended to be spent on health care delivery and curtails access to the health care system. Physicians no longer control the spending of the health care dollars and thus can no longer assure that the dollars are well spent. The loss of physician control combined with the newly developing forces of competition makes the delivery of quality health care more difficult.

L. Ashley Whitesell, M.D.

The advent of the prospective payment system, including the DRG, and the decrease in physician control of the health care dollar have brought new players into the system and have created a competitive health care environment. With the changes in the economics of health care delivery, hospitals and other institutions are moving into direct competition with physicians in order to survive.

An example of a hospital competing with physicians exists in my community. The corporate owner of the local hospital pushed a motion through the local governing board to develop a "specialty clinic." The board approved a large sum of money to organize and staff the clinic over a three-year period. The stated owners of this project are physicians who are controlled by the corporation, and they are referred to as "captives" in the corporate jargon. Here we have an example of a non-tax-paying corporation competing with a local tax-paying business — a group medical practice. We may see more perplexing situations like this develop in Minnesota in the future as hospitals are forced to adapt to competition.

The delivery of rural health care is complicated by the Health Care Finance Administration (HCFA) decree that rural citizens cost *less* to care for than urban citizens. As a result, Medicare reimbursement is lower to rural physicians and hospitals. Understandably, rural citizens expect to receive the same level of care as urban dwellers. The challenge to the rural physician is to deliver the expected level of quality care and be able to survive with a lower level of reimbursement.

This seemingly endless parade of economic difficulties demands extensive physician involvement in the MMA and in politics. By joining forces through the MMA and MINNPAC, we can energize our health care economic engine. This collective fuel-injection system will allow physicians to efficiently use the available resources and continue to deliver high quality health care. Only through collective action will we be able to seize opportunities, capitalize on them and continue to deliver the high quality health care to which Minnesotans are accustomed.

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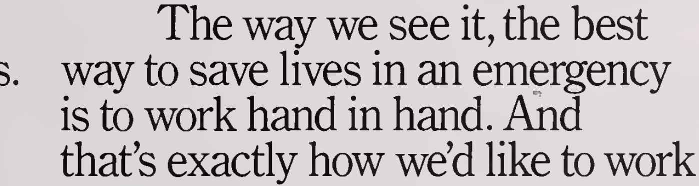

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editor's notebook

The Corporate Transformation of Medicine in Minnesota: How to Control Your Practice for the Next Five Years*

Twenty-second in a series

What I'm about to tell you may help you control the destiny of your practice for the next five years. If you'll recall, when I spoke before the Minnesota Academy of Medicine two years ago, I gloomily assessed the predicament physicians found themselves in, torn between demands of their profession and diversions of business. Many of you, if not most, still regard the corporate transformation of medicine as a massive and unwelcome distraction and digression from your chosen calling.

A More Upbeat Message

My message this year will be more upbeat. To wit: you can control your destiny by promoting yourselves and your profession, by taking individual and collective steps to shape your future.

When I spoke here two years ago and rendered unto you a negative message, I was not speaking properly to an academy. An academy, according to my dictionary, is an association for the promotion of literature, science, art, and causes, formed by the voluntary union of private individuals, the members of which are called academicians.

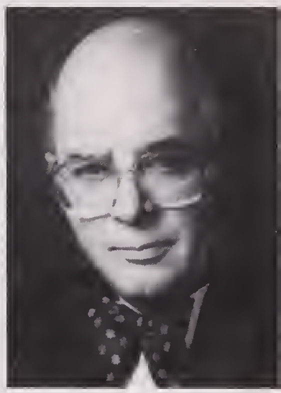
So, fellow academicians, I am here this evening to "promote" your cause. "Promote," in my lexicon, is an active, transitive, and positive verb. It implies action. It means to contribute to the growth, enlargement, or power of; to forward; to help to organize; and to attempt to increase the market of.

Why the Title of "Control?"

If I'm here to promote, why have I chosen the title: "How to control your practice for the next five years?" Why five years?

Well, to begin with, I think of "promotion," or forward thinking, as a way of controlling your destiny. If you know where you're going and you work toward your goal, you're more likely to get there.

I have chosen five years because I believe medicine has reached a historic turning point, a watershed, a pivot point. If in the next five years we do not become activists and regain control of our role as patient advocates, if we do not take the lead in defining what quality is and defending it, if we do not recognize the fundamental importance of market research and do some of our own to pin down why patients value some doctors and hospitals more than others, and if we do not insist upon, and even demand, a role in managing health care corporations, then we deserve our fates.


Richard L. Reece, M.D.

The Golden Years are Gone

I have also chosen five years because many of you have only five years left to practice. Many of you are 55 to 65 years of age, all of you are specialists, and most of you have practiced in the Golden Age of Medicine, roughly stretching from 1955 to 1980. This era was characterized by cost-plus reimbursement. This means of payment was wonderful. Why? Because it permitted you to combine your idealism and your self-interest. The more you did for the patient, the happier the patient was and the more you were paid.

To make life even sweeter, the physician/population ratio was virtually constant. It was 141/100,000 in 1950, declined to 124/100,000 in 1963, finally returned to 141/100,000 in 1975, and has been up sharply ever since, reaching 199/100,000 in 1980, and is slated to hit 225/100,000 by 1990. By 1990, half of all practicing physicians will have been trained since 1980.

Given these gloomy numbers, wouldn't you welcome some practical advice on how to control your practice these next five years? First, let's understand what's happening, or as we say on the Minneapolis side of the river: "What's Hennepin?"

Understand the Fundamental Forces at Work

The transition from a medical culture to the culture of society at large: Instead of being independent professionals, we are becoming professionals within organizations — bound, at least at the margin, by the rules that organization imposes. So, my first piece of advice is: Be active in the organization. Help set the rules. Indeed, demand that you help set the rules.

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*Based on a presentation before the Minnesota Academy of Medicine, May 6, 1986.

We are undergoing a transition from a professional-dominated field — where you alone make the rules — to a customer-dominated field. These days, customers — be they patients, health plans, health benefit officers of corporations, or government — are calling the shots. Customers are telling us what they value. On the one hand, they tell us they want comprehensive care, coordinated care, pre-paid, predictable, and prearranged care, and paper-free care.

But on the other, they are demanding their own primary care physicians, access to their own specialists, a straight shot to the institution of their choice, and a chance to receive all the benefits of today's medical technology.

With this high tech, they also want high touch — minimal waiting times, convenient hours revolving around their schedules and not yours, and such amenities as good food, attractive lodging, and common courtesies. These common courtesies include respecting their dignity, knocking before entering, and offering them brochures explaining the procedure they are about to undergo.

Reshaping of Medical Remuneration Dollars

Today we have 67% specialists and 33% primary care physicians, with the specialists making 1½ to 3 times what the generalists make. Because the generalists are the access and referral points and the key to economic success of most plans, pressure is being brought to bear to bring the ratio of specialists to generalists nearer to 50/50 and to narrow the income differences.

Developing a Positive Philosophy

Once you understand these forces, develop a positive philosophy to help you deal with the new realities. I have one. I got mine from reading a book called the *Effective Executive*, published almost 20 years ago. It is still on the market, in paperback. I recommend it. Its author and the father of modern management, Peter Drucker, observed that certain executives — and I believe this applies to physicians, too — are invariably more effective than others. Based on these observations, he gave these pieces of advice to executives who wanted to be effective:

"Courage rather than analysis dictates the truly important rules for identifying priorities:

- Pick the future against the past;
- Focus on opportunity rather than on problems;
- Choose your own direction — rather than climb on the bandwagon; and
- Aim high, aim for something that will make a difference, rather than for something that is 'safe' and easy to do."

The Key Word

The key word in all of this is courage. If we, as older physicians and mentors, are to lead, we must have courage. We must speak out. We must have the guts to step forward. If we feel so deeply about our profession, what do we have to lose? Nothing but our self-respect. We must learn to trust ourselves and the decent values we were raised on. We must learn to handle ourselves in the business world. We have to learn to be optimistic, for the opposite of optimism is despair.

Become Better Informed

■ Become better informed. And do so in a systematic, organized, and purposeful way. This will require that you change your reading habits and maybe the tilt of your thinking.

■ Read *Health Affairs*, a quarterly published by Project Hope that tells you what is flowing out of Washington.

■ Read *Medical Practice Management*, a new quarterly started, edited, and overseen by Marcel Frenkel, M.D., MBA, an associate professor of ophthalmology, neurology, and neurosurgery at the University of Illinois in Chicago.

If I were recommending one publication, outside of *Minnesota Medicine*, of course, it would be the *Journal of Medical Practice Management*. It brings together material you will find useful in controlling your practice.

For some reason, I am reminded of the original prospectus of *Time* magazine, written 64 years ago. It goes like this: "People in America are, for the most part, poorly informed. This is not the fault of the daily newspapers; they print all the news. It is not the fault of the weekly "reviews"; they adequately develop and comment on the news. To say with the facile cynic that it is the fault of the people themselves is to beg the question. People are uninformed because no publication has adapted itself to the time which busy men are able to spend on simply keeping informed."

■ Write and ask for these investment House Newsletters: Sanford C. Bernstein Inc., Soloman Brothers Inc., and L. F. Rothschild, Unterberg, Towbin Inc. — all New York investment houses. I am not recommending these newsletters and research documents to encourage you to invest. I am recommending them because they tell you what the investors' gurus are predicting for the next five years.

Among other things, they predict a decline in health care expenditures; a replacement of fee-for-service medicine by managed systems that control cost and use; a rise nationally in HMOs to control 25% of the market by 1990; a major crisis in the hospital industry by 1987-88, with the closing of 500 hospitals and 200,000 hospital beds; and a limited range of tactics for physicians and hospitals to cope.

As these firms see it, the only long-term vehicle for market share expansion is direct marketing to payers, and this marketing will require large corporations that can buy out hospitals, doctors' practices, and suppliers. These newsletters contain well-organized information you won't find elsewhere.

■ For books, I recommend *Practice Enhancement: The Physician's Guide to Success in Private Practice*, by Greg Kordeluk, MacMillan, Co.; *Innovation and Entrepreneurship: Practices and Principles*, Peter Drucker, Harper & Row; *The Social Transformation of American Medicine*, Paul Starr, Basic Books (now in paperback); and *Power and Influence: Beyond Formal Authority*, a book by John Kotter of the Harvard Business School faculty. Kotter says that in complex organizations, you must always tread that narrow path between naivete and cynicism. Be realistic, but don't be dumb and don't look darkly at everything.

You might even want to read Joseph Califano's book, *The American Health Care Revolution*, to see what the enemy is saying.

Exerting Your Collective Clout

■ Recognize your collective clout. Because of your lessening power in recent years, you may have the impression that you have no residual clout. I do not believe it. You still have power, if you exercise it right. Don't be too discouraged that you now work under different economic umbrellas. If there's one thing I've learned in the last five years, it's that more commonalities than differences exist among doctors. At the moment, deep despair grips physicians, but it is not restricted to PHP physicians. You'll also find it among SHARE physicians, among Blues' physicians, and at MedCenter, and Group Health.

The PHP Row

A tremendous furor has erupted among PHP physicians because PHP selected 9 of 34 Twin Cities' hospitals as places where low-cost PHP senior patients could go. As a consequence of that act, chiefs of staff of Twin Cities' hospitals have formed an oversight committee that is monitoring the performance of PHP management and questioning its actions. This is healthy. PHP physicians have every right to question their management. I see no good reason the idea of an oversight committee could not be extended to other HMOs.

Talk of a Union

I don't know if we are ready for a union. I know Dr. Sanford Marcus would love to organize one. I know physician militancy fills the air; I know a few physicians are saying the Minnesota Medical Association is in danger of becoming an ineffective and irrelevant organization; and I know the time may be near to form some kind of physician association under the banner of something like: "Physicians for High Quality and High Value Care." I do not advocate these movements. I am sharing what I hear.

Seizing the Initiative on Quality

■ Seize the initiative on quality. Personally, I believe quality is the issue physicians ought to exploit. Dr. Robert Geist of St. Paul has said we should not wait around for the media to find flaws in HMO quality. Nor should we wait for someone else to find flaws in fee-for-service quality. Dr. Richard Frey has noted: "No one yet knows how to monitor quality." I agree. But that doesn't mean we shouldn't try.

Let's get to work and learn how to monitor it. Let's form a think tank and aggressively set forth our positions. I have often heard it said: "First, we'll have a price war, then a quality war will ensue." University people are particularly fond of saying this. Well, let's position ourselves for that war.

It is not as if "quality" is so elusive, ephemeral, and mercurial. Walter McClure, who heads the Center for Policy Studies here in Minneapolis, has written brilliantly on quality. He has said, "When you ask quality providers to earn less on each patient, there is only one way to reward them. Send them more patients."

Quality, he adds, means what percentage of a physician's patients had a clinically acceptable outcome, not whether the physician succeeded or failed with this or that patient. What we have to do is to calculate each physician's batting average. You can do this in multiple ways: 1) Retain an expert in quality medical practice to review claims; 2) statistically analyze claims; 3) statistically analyze medical records on the basis of severity and outcome; 4) enter physician and patient data into a system that gives you five- or ten-year outcomes or even lifetime outcomes. All of this complicated data must then be reduced to batting averages that physicians, hospitals, and purchasers can understand.

None of this is easy. But it is doable. And we ought to be taking a position — a highly visible position — on it.

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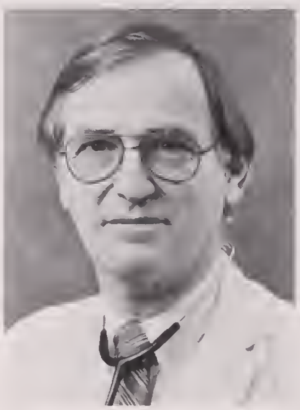

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Your Allies

■ Accept your hospital administrator and his or her staff as your allies. Take the attitude that cooperation and collaboration are more productive than confrontation and competition. Explore ideas that may prove mutually beneficial. The hospital would like to invest in your practice. It can do this by helping you manage or market your practice. All hospitals today have marketing departments, and it isn't difficult, indeed it is beneficial, for them to bring more patients into your office and ultimately into their hospitals. Hospitals are not necessarily seeking control of your practice but a guarantee of a future stream of patients.

Thinking in Terms of Patients

■ Think in terms of your patients. What can I do for them? What can I uniquely contribute to them? Send out surveys. Do a strategic business plan for your practice. Create your own office newsletter. Buy a $1500 dollar computer, a $100 word processing program, and a mailing list program to put together a newsletter to remind your patients that their annual physical or Pap smear is due, and to send them birthday greetings or reminders of changes in your office personnel or procedures. Avoid obvious commercialism and claims of competitive advantage over your peers. This is unprofessional and suicidal. But being thoughtful isn't commercial. In short, use current technology to project a high-tech high-tough image. You'll find it's not so difficult and immensely satisfying. You'll be taking positive and personal steps to control your future, rather than bemoaning the problems posed by competing organizations.

Don't Believe All Prophecies

■ Don't accept every self-fulfilling prophecy you hear. We have taken on face value in this town some of the following predictions: 1) 100% of physicians will be in HMOs in the next five years; 2) capitation payment is an irresistible wave that will soon sweep over us all; 3) national for-profit HMOs are an idea whose time has come and cannot be resisted; and 4) by 1990 the world will be composed exclusively of SuperMeds.

A Word on the Latter

Paul Ellwood's vision is that we will have a three-tiered system: tier one, 15 or 20 SuperMeds — Kaiser, Cigna, the Blues, Prudential, HCA, Humana, US Health Systems, Maxicare, United HealthCare Corporation, Voluntary Hospitals of American with Aetna, American MedCenters, and maybe Mayo — controlling 50% of the system; 150 regional health systems controlling 25% of the system; and niche suppliers or transitional providers making up the remaining 25%. Presumably, you will all be absorbed or put out of business by the SuperMeds of regional health systems or will become a "transitional supplier."

Well, I'm not so sure. Ellwood has more faith in the management savvy, marketing skills, and knowledge of Big Business than I do. Keep in mind that in the last ten years, the Fortune 500 companies lost 4 to 5 million jobs, while innovative small firms of less than 500 people added 20 million jobs to the U.S. economy. Also keep in mind that those HMOs gaining market shares are not the capitated plans. Remember the PHP sign at the east end of Hwy 12 in downtown Minneapolis that reads: "1400 specialists without a referral." People don't want a gatekeeper. They want to step through the gate themselves.

More Freedom of Choice

And remember that the people of Minnesota overwhelmingly have opted for freedom of choice plans, they want the benefits those plans offer but they want their own doctors too. And, remember that the American people maintain a steadfast faith in the benefits of medical technology. The investment world is pouring tremendous amounts of capital into new medical technology ventures.

Last, don't forget the elderly. With the graying of American, Congress cannot radically reduce Medicare funds. Many old people live near the poverty line, and they already are paying $1360 for out-of-pocket hospital expenses. No congressman up for re-election can withstand the wrath of 24 million irate members of the American Association of Retired Persons.

Conclusion

You can control your practice these next five years. But this control will require courage — the courage to promote yourself and the causes of medicine, the courage to stand up against the managers of HMOs, the courage to take the lead in defining quality and standing by that definition as a criterion for paying yourself, the courage to change your reading habits and your attitudes toward business, the courage to accept different forms of payment, and the courage to accept and welcome change.

special feature

Putting a price tag on your practice

Thomas Helling, MBA, CPA, and Thomas C. Erickson***

The market for physician services has changed dramatically in recent years. So have practice and clinic values. During years of physician scarcity, it was relatively easy for a physician to establish a practice and obtain financing for equipment. Very few physicians bought a practice outright, and when they did, the sale was between senior and junior partners. There was no "market" for an established practice.

But as population/physician ratios decrease, established practices gain value. Patients frequently return to the same convenient location if the practice is transferred to a new physician. Should the key staff, furnishings, equipment, and billing procedures remain in place, an even greater number of patients will stay with the existing practice. Given the time and costs required to attract new patients in today's competitive market, purchasing an existing practice has become a viable strategy for physicians and even hospitals to expand into new areas. Hence, the value of medical practices has increased dramatically — a trend that has also occurred in dental, accounting, and legal practices. There is now a "market" where established practices can be sold.

Tangible and Intangible Assets

Many variables determine practice value. Some are objectively determined and translate easily into fixed-dollar amounts. These tangible assets include real estate, lease value, medical equipment, professional supplies, and accounts receivable. Buyers often find the purchase of these "hard assets" straightforward and are willing to pay a fair market value for them because they can be depreciated against the purchase price.

The intangible assets, such as patient transfer and the promise of future revenues, are much more subjective. The value of these assets lies in the ability of one physician to transfer them to another. Still, intangible assets constitute a significant portion of practice value in today's market. The value of what can actually be transferred to a buyer depends in part on the following:

■ **Active patients** — For most physicians, active patient count is determined by the number of patients who have been seen at least once within the last three years. This number relates directly to practice value and is perhaps the key statistic.

■ **Patient characteristics** — Patient age and other characteristics that may affect future earnings should be taken into account. For example, a high proportion of older patients may be seen as a negative asset to a family practitioner but a valuable mix to the general surgeon or ophthalmologist.

■ **Payer mix** — The proportion of patients who are prepaid, Medicare, Medicaid, Blue Shield, and commercial will affect practice value. A prepaid patient base may or may not appeal to a buyer, while a self-paying population with a good payment history almost always appeals to a buyer.

■ **Management practices** — Organization of the practice, key staff retention, quality of patient care, collection ratio, efficiency, and the personality of the practice all affect transferability.

■ **Competition and market share** — The level of competition for patients, where patients come from, and the physician's portion of the market are all factors affecting value.

■ **Age and health** of owner — Practice value declines as the options of the seller diminish. The value of a solo practice may level out when the practitioner reaches age 55, then decline rapidly. In the event of a principal physician's death or disability, the value of the intangible assets may approach zero since patients will likely seek a new physician before the buyer can become established.

■ **Community demographics** — Is the community growing or shrinking? What is its economic health? Will it continue to support a healthy practice?

Each practice is unique according to the physician's and buyer's particular interests. The price for a practice's intangible assets or "blue sky" relates to the extent that the transfer may result in continued earnings for the buyer. The percentage of selling price applied to "blue sky" has been increasing and generally ranges from 20% to 40% of one year's revenue for primary physician practices in Minnesota. Recent average percentages credited to "blue sky" or "goodwill" of practice sales in various specialties are listed in the

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* President, Thomas Helling Company, St. Paul, a firm specializing in medical practice valuations and building practice value and is a principal consultant with Minnesota Medical Services Corporation.

** Director of consulting services, Minnesota Medical Services Corporation, providing consulting services to members of the MMA.

TABLE
Goodwill Registry Report
June 1986

Specialty	Current Average	Specialty	Current Average
Allergy	32%	Neurosurgery	18%
Cardiology	18%	OB/GYN	34%
Cardiovascular	71%	Oncology	22%
Colon & Rectal Surgery	53%	Ophthalmology	44%
Dermatology	33%	Orthopedics	28%
Ear, Nose & Throat	24%	Pathology	16%
Endocrinology	15%	Pediatrics	27%
Family Practice	25%	Plastic Surgery	62%
General Practice	44%	Psychiatry	11%
General Surgery	25%	Radiology	50%
Infectious Disease	30%	Rheumatology	16%
Internal Medicine	24%	Thoracic Surgery	36%
Multispecialty	90%	Urology	28%
Nephrology	91%		

National averages represented with permission from Health Care Group, Bala Cynwyo, PA.

Table. In every case a potential seller must remember that value is determined by what a willing buyer will pay a willing seller.

Approaches to Value

There are several approaches to establishing a value for the tangible and intangible assets of a medical practice. Using any *one* of them is like looking at a picture of a building to determine its value. The front may be attractively finished and the back deteriorating. A realistic, workable determination of practice value includes all four of the following approaches:

■ **Market approach** — It is helpful to compare the practice to similar practices that have sold. One can expect the selling price to be similar for practices with comparable active patient count, gross income, net income, and community size. Accountants may not choose to use this approach, but it can be a key indicator of practice value. Knowledge of the selling price of other practices can provide a competitive edge when negotiating with potential buyers.

■ **Income approach** — In order to purchase a practice, the buyer must be able to pay the overhead, take home a competitive wage, and still be able to service the debt. The income approach to value is useful because it helps the buyer determine how large a loan can be financed with practice revenues. If rent, utilities, medical supplies, and salaries eat up most of the earnings, the buyer will only be able to obtain a small loan to finance the practice and the value will be low. Adequate cash flow is vital to the success of the practice and must be taken into consideration when determining the value.

■ **Specific value** — It is useful to look at the intangible assets from a variety of angles, then determine an "average goodwill value." The figures used in these calculations relate directly to the number of patients expected to transfer to the new owner and to comparisons with similar practices. This is added to the fair market value of the equipment, medical supplies on hand, and the value of accounts receivable to determine a reasonable selling price for the practice. The following factors can be used to determine average goodwill value:

- percentage of receipts for the most recent year,
- percentage of receipts for the previous three years,
- net earnings for the previous three years,
- number of active patients times 1/2 the charge for an office visit,
- the (opportunity) cost of starting the practice from scratch.

■ **Liquidation value** — Liquidation value usually provides the lowest possible value for a practice. It is the value given to a practice when a physician closes shop and locks the doors. This approach includes the value of accounts receivable and a discounted value for patient records, medical equipment, and supplies on hand.

Conclusion

As the number of physicians, and thus competition for patients, increases, well-established productive practices are growing in value. Intangible assets such as patient transferability and earnings potential are a significant portion of a practice's value. Determination of this value is highly subjective, dependent on a number of variables, and reflects the uniqueness of each transaction.

A comprehensive, independent appraisal can provide physicians with evidence that substantiates the intangible value and builds a foundation upon which all parties can negotiate a price. This service is available to members of the Minnesota Medical Association through the consulting network of the Minnesota Medical Services Corporation (MMSC).

MMSC, a subsidiary of the MMA, also provides marketing consultation, management evaluation, and organizational structure analysis. For a confidential assessment, contact the MMSC consulting director at (612) 378-0305.

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ZANTAC® 150 h.s.

ranitidine HCl/Glaxo 150 mg tablets

EFFECTIVE MAINTENANCE THERAPY

for healed duodenal ulcer patients

See last page for references and
Brief Summary of Product Information.

Glaxo/ROCHE

CONFIRMED

In two randomized, double-blind, and well-controlled clinical trials, ZANTAC 150 mg h.s. significantly superior to cimetidine 400 mg h.s. for maintenance therapy in healed duodenal ulcers.

Percent of patients with observed duodenal ulcer recurrence

		0-4 months	0-8 months	0-12 months	No. patients
USA[1]	ranitidine 150 mg h.s.	9%	14%*	16%†	60
	cimetidine 400 mg h.s.	23%	34%	43%	66
UK, Ireland, Australia[2]	ranitidine 150 mg h.s.	8%‡	14%‡	23%‡	243
	cimetidine 400 mg h.s.	21%	34%	37%	241

*$p=0.02$
†$p=0.01$
‡$p\leq 0.004$
%=life-table estimates
All patients were permitted prn antacids for relief of pain.

These two trials used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.

The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.

The superiority of ranitidine over cimetidine in these trials indicates that the dosing regimen currently recommended for cimetidine is less likely to be as successful in maintenance therapy.

Convenient once-a-night dose with a low incidence of side effects[3]

Headache, sometimes severe, seems to be related to ranitidine administration. Other side effects have been reported; for a complete listing, see the **ADVERSE REACTIONS** section in the Brief Summary.

No significant interference with the hepatic cytochrome P-450 enzyme system at recommended doses

ZANTAC 150 mg has no significant drug interactions with theophylline, phenytoin, or warfarin. The bioavailability of certain medications whose absorption is dependent on a low gastric pH may be altered when ZANTAC or other medications that decrease gastric acidity are administered.

Zantac® 150
ranitidine HCl/Glaxo 150 mg tablets

One tablet at bedtime
for maintenance

See next page for references and
Brief Summary of Product Information.

Glaxo/ROCHE®

CONFIRMED

Zantac® 150

ranitidine HCl/Glaxo 150 mg tablets

One tablet at bedtime for maintenance therapy in healed duodenal ulcer patients

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3. Data available on request, Glaxo Inc.

ZANTAC® 150 Tablets
(ranitidine hydrochloride)
ZANTAC® 300 Tablets
(ranitidine hydrochloride)

BRIEF SUMMARY OF PRODUCT INFORMATION

The following is a brief summary only. Before prescribing, see complete prescribing information in ZANTAC® product labeling.

INDICATIONS AND USAGE: ZANTAC® is indicated in:

1. Short-term treatment of **active duodenal ulcer.** Most patients heal within four weeks.

2. **Maintenance therapy** for duodenal ulcer patients at reduced dosage after healing of acute ulcers.

3. The treatment of **pathological hypersecretory conditions** (eg, Zollinger-Ellison syndrome and systemic mastocytosis).

4. Short-term treatment of **active, benign gastric ulcer.** Most patients heal within six weeks and the usefulness of further treatment has not been demonstrated.

5. Treatment of **gastroesophageal reflux disease (GERD).** Symptomatic relief commonly occurs within one or two weeks after starting therapy and is maintained throughout a six-week course of therapy.

In active duodenal ulcer; active, benign gastric ulcer; hypersecretory states; and GERD, concomitant antacids should be given as needed for relief of pain.

CONTRAINDICATIONS: ZANTAC® is contraindicated for patients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomatic response to ZANTAC® therapy does not preclude the presence of gastric malignancy.

Since ZANTAC is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see **DOSAGE AND ADMINISTRATION**). Caution should be observed in patients with hepatic dysfunction since ZANTAC is metabolized in the liver.

False-positive tests for urine protein with Multistix® may occur during ZANTAC therapy, and therefore testing with sulfosalicylic acid is recommended.

Although recommended doses of ZANTAC do not inhibit the action of cytochrome P-450 enzymes in the liver, there have been isolated reports of drug interactions which suggest that ZANTAC may affect the bioavailability of certain drugs by some mechanism as yet unidentified (eg, a pH-dependent effect on absorption or a change in volume of distribution).

Lack of experience to date precludes recommending ZANTAC for use in children or pregnant patients. Since ZANTAC is secreted in human milk, caution should be exercised when administered to a nursing mother.

ADVERSE REACTIONS: Headache, sometimes severe, seems to be related to ZANTAC® administration. Constipation, diarrhea, nausea/vomiting, and abdominal discomfort/pain have been reported. There have been rare reports of malaise, dizziness, somnolence, insomnia, vertigo, tachycardia, bradycardia, premature ventricular beats, and arthralgias. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients.

In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg qid IV for seven days, and in 4 of 24 subjects receiving 50 mg qid for five days. With oral administration there have been occasional reports of reversible hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice.

There have been rare reports of reversible leukopenia, granulocytopenia, thrombocytopenia, and pancytopenia.

Although controlled studies have shown no antiandrogenic activity, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving ZANTAC, but the incidence did not differ from that in the general population.

Incidents of rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia, have been reported, as well as rare cases of hypersensitivity reactions (eg, bronchospasm, fever, rash, eosinophilia) and small increases in serum creatinine.

OVERDOSAGE: Information concerning possible overdosage and its treatment appears in the full prescribing information.

DOSAGE AND ADMINISTRATION: **Active Duodenal Ulcer:** The current recommended adult oral dosage is 150 mg twice daily. An alternate dosage of 300 mg once daily at bedtime can be used for patients in whom dosing convenience is important. The advantages of one treatment regimen compared to the other in a particular patient population have yet to be demonstrated.

Maintenance Therapy: The current recommended adult oral dosage is 150 mg at bedtime.

Pathological Hypersecretory Conditions (such as Zollinger-Ellison Syndrome): The current recommended adult oral dosage is 150 mg twice a day. In some patients it may be necessary to administer ZANTAC 150-mg doses more frequently. Doses should be adjusted to individual patient needs, and should continue as long as clinically indicated. Doses up to 6 g/day have been employed in patients with severe disease.

Benign Gastric Ulcer: The current recommended adult oral dosage is 150 mg twice a day.

GERD: The current recommended adult oral dosage is 150 mg twice a day.

Dosage Adjustment for Patients with Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with ZANTAC, the recommended dosage in patients with a creatinine clearance less than 50 ml/min is 150 mg every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosage schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

HOW SUPPLIED: ZANTAC® 300 Tablets (ranitidine hydrochloride equivalent to 300 mg of ranitidine) are yellow, capsule-shaped tablets embossed with "ZANTAC 300" on one side and "Glaxo" on the other. They are available in bottles of 30 (NDC 0173-0393-40) and unit dose packs of 100 tablets (NDC 0173-0393-47).

ZANTAC® 150 Tablets (ranitidine hydrochloride equivalent to 150 mg of ranitidine) are white tablets embossed with "ZANTAC 150" on one side and "Glaxo" on the other. They are available in bottles of 60 tablets (NDC 0173-0344-42) and unit dose packs of 100 tablets (NDC 0173-0344-47).

Store between 15° and 30°C (59° and 86°F) in a dry place. Protect from light. Replace cap securely after each opening.

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contributions

Response of immunocompromised patients with acute herpes zoster to intravenous acyclovir*

K. A. McMonigal, M.D.†; H. H. Balfour, Jr., M.D.†; B. Bean, M.D.†

In immunocompromised patients with zoster, intravenous acyclovir halts progression of disease and decreases complications.[1] Viral shedding and pain are also decreased and skin healing accelerated in some patients.[2,3] We studied other aspects of the response to therapy, including duration of treatment needed to assure healing, viral shedding in relation to rash appearance, temperature and serologic responses, and changes in renal function. In this paper, we describe our findings and discuss their implications for patient management.

Patients and Therapy

Fifty-two immunocompromised patients, consecutively referred to the University of Minnesota Hospital, were studied. All received intravenous acyclovir in a dosage of 250-500 mg/M² of body surface area (5-15 mg/kg) every 8 hours or as adjusted for renal function according to the package insert. Therapy was continued until crusting and healing were proceeding on a daily basis and no new lesions had formed for at least 24 hours. Patients were examined daily. Lesion aspirates were obtained for virus culture and blood was drawn for serum creatinine and varicella-zoster (VZV) antibodies as frequently as possible.

The distribution of patients is shown in Table 1. More than one-half of the patients (30 of 52) had localized zoster, and almost one-half (21 of 52) had leukemia or lymphoma as their underlying disorder. Therapy for zoster was instituted a median of 4 days after rash onset. Forty percent of patients (21 of 52) began therapy within 72 hours of rash onset; the remainder began within 4-30 days (median, 5 days).

Thirty-six patients (69%) required 7 days of therapy, 12 (23%) required 8-10 days and three needed 13-14 days to achieve a satisfactory rate of healing. All patients recovered except one — a man with refractory lymphoma and disseminated histoplasmosis who died 2 days after beginning acyclovir for disseminated zoster.

Viral shedding and lesion healing: Daily lesion cultures were available from 15 of the patients and are compared with lesion appearance in the Figure. Median time to cessation of viral shedding after start of therapy was 5 days and was not influenced by extent of rash or underlying disease. Patients who began therapy within 72 hours of rash, however, ceased shedding virus after a median of 6 days. Ninety percent of patients (14 of 15) were culture-negative by day 7 of therapy. Median time to drying of lesions was 9 days from start of therapy; 90% of patients no longer had vesicles and pustules by day 11. Thus, viral shedding ceased a median of 4 days before all lesions had crusted, and although seven patients still had vesicles on day 8 of therapy, none was shedding virus.

Fever: Twenty-five patients had high fever (> 38.3°C) at some point during the course of their illness. Fourteen of these had localized and 11 had disseminated zoster.

Thirteen of the 25 were febrile at the time therapy was instituted. Fever lasted a median of 4 days (range 2-10) after therapy was begun in this group and was similar in patients with localized and disseminated disease.

Twelve patients (seven with localized and five with disseminated zoster) had no or low-grade fevers when therapy was instituted but developed fevers 2-4 days into the treatment course. One of these had bacteremia associated with an intravenous catheter, but no source was found in the remaining 11, and the fever was attributed to zoster in all cases. High fever lasted 1-4 days (mean 2 days) in these patients and was associated with dissemination of zoster (to the central nervous system) in one patient.

VZV antibodies: Paired sera were available from 17 patients for analysis of VZV antibody responses. Fifteen had received acyclovir in a dose of 500 mg/M² and two received 250 mg/M².

Six patients (all with localized zoster) had no VZV antibodies when therapy was instituted but seroconverted within the next 30 days. Reciprocal mean convalescent titer in this group was 36 (Table 2). Eleven patients were seropositive when therapy was begun, and six of these developed further fourfold rises in titer; acute and convalescent mean titers were 13 and 85, respectively. The remaining five patients had unchanging titers: three of them began therapy during the second or third week of illness when their titers had already risen (Table 2), and two were terminally ill and died within two months. Zoster recurred within one month of the treated episode in both these latter patients.

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* This work was supported by a grant from Burroughs Wellcome Co. USA

†Department of Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

TABLE 1
Patients receiving intravenous acyclovir for acute zoster

	Manifestation of Zoster			
Underlying Disorder	Localized Rash	Cutaneous Dissemination	Visceral Dissemination	Total
Leukemia/lymphoma	10*	7	4	21
Renal transplantation	7	4	1	12
Bone marrow transplantation	8	3	1	12
Connective tissue disorder	3	0	1	4
Solid tumor	2	1	0	3
Total	30	15	7	52

* Number of patients

TABLE 2
Development of VZV antibodies in immunocompromised patients treated for zoster

		Titer (geometric mean reciprocal)	
Patients with	n	Acute	Convalescent
Seroconversion	6	<4	36
Fourfold rise	6	13	85
No change			
late therapy	3	40	40
terminal illness	2	4	4

Renal function: Seven of the 52 patients (13%) developed elevations in serum creatinine of 0.3 mg/dl or more while receiving acyclovir. Three were renal and two were bone marrow allograft recipients and two were patients with leukemia or lymphoma. One was among 11 patients receiving acyclovir in a low dose (250 mg/M²) and the other six were among 41 patients who received the higher dose (500 mg/M²). Four of the seven were among 35 patients (11%) who had normal creatinines when acyclovir was instituted, and three were among 17 patients (18%) with abnormal pretreatment creatinines (median 1.5 mg/dl, range 1.1-8.1 mg/dl).

The creatinine elevations occurred a median of 4 days after acyclovir was begun (range 1-14). In three of the patients, the creatinine returned to normal while on therapy, and in one, after it was discontinued. In the remaining three, the dose or dosing interval was adjusted, and their creatinines also returned to normal.

Discussion

In this investigation, the response of immunocompromised zoster patients to acyclovir was studied under common conditions of treatment, i.e., when therapy was instituted more than three days after rash eruption and when dosage was individualized. Therapy was judged to be helpful, although the response was not immediate in many cases.

Defervescence did not occur promptly following institution of acyclovir therapy. Appearance of high fever during the course of treatment was not uncommon but infrequently heralded the onset of disseminated disease. Drug fever due to acyclovir has not been reported and seems an unlikely explanation for appearance of fever on therapy. It is more likely that high fever was a manifestation of zoster itself and that it had been intermittently present prior to treatment.

More than two-thirds of the patients were healing steadily after 7 days of therapy, and none required more than 14 days, suggesting that a 7-14 day course of therapy should be planned in immunocompromised patients. Cessation of viral shedding occurred several days earlier than lesion scabbing and drying, a finding which is not surprising if acyclovir suppresses viral replication, but healing has been impaired by various immunosuppressive regimens. It is standard practice to remove zoster patients from isolation when all skin lesions are scabbed, and our data would support this practice. In fact, these data would suggest that patients are no longer shedding viable virus after 7 days of acyclovir therapy, regardless of lesion appearance.

Antibody responses, while not dramatic, were positive in 86% of patients who had not developed antibodies prior to treatment. The magnitude of the antibody response is lower than that seen in non-immunocompromised zoster patients treated with acyclovir,[4] but the percentage of patients with fourfold or greater rises is similar to that reported by Atkinson and colleagues[5] in untreated bone marrow transplant patients with zoster. Six patients had no VZV antibodies at outset of treatment, although they had typical zoster. It is possible that these patients had lost their antibodies, or that the FAMA test we used failed to detect very low antibody levels, although it is a sensitive test.[6]

Thirteen percent of patients experienced a decrease in renal function while receiving acyclovir, a frequency similar to the 15% reported by Meyers and colleagues in bone marrow recipients.[2] The creatinine elevations were mild and occurred early in the treatment course; in more than 50% of cases,

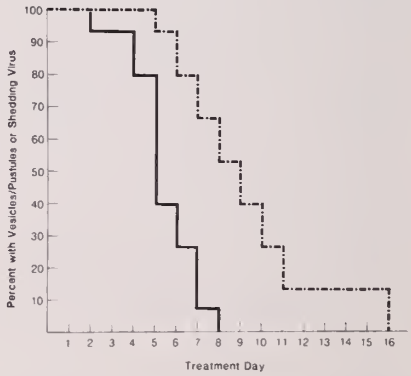

FIGURE — Cessation of viral shedding (——) and drying of vesicles and pustules (— ——) in 15 immunocompromised zoster patients treated with acyclovir.

they resolved without modification of the treatment regimen. Although no other etiologies were found for renal insufficiency it is, of course, not possible to be certain that all observed changes were due to acyclovir alone in patients such as these who are receiving multiple medications and may have more than one underlying disease. Thirteen to fifteen percent may thus represent a slight overestimation of the frequency of renal insufficiency under these circumstances. High-dose intravenous acyclovir is, however, known to be associated with transient renal insufficiency, especially in dehydrated patients.[7] Thus, changes in creatinine should alert physicians to possible problems with dehydration and/or acyclovir dosage. Because acyclovir is eliminated predominantly unchanged in the urine, pre-existing renal insufficiency might be expected to put patients at greater risk of adverse reactions than previously normal renal function. While the difference in proportions was not significant in these small groups, more of the patients with previously abnormal (3/17) than normal (4/35) serum creatinines experienced a decline in renal function while receiving acyclovir. We suggest that all patients, and certainly those with abnormal renal function, should be monitored with periodic serum creatinines while receiving high-dose intravenous acyclovir.

In conclusion, acute herpes zoster in immunocompromised subjects may respond slowly to therapy with intravenous acyclovir, even when treatment is begun early. In the majority of cases, this does not indicate a poor prognosis and patients recover satisfactorily. Elevations of serum creatinine may be seen in up to 15% of hospitalized patients but are mild and transient and do not always necessitate a decrease in dosage.

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Clinical and laboratory features of cryptococcosis
a five-year experience

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Vigorous immunosuppressive regimens for tissue transplantation and prolonged survival of patients with certain neoplastic diseases have produced an increasing population of patients at risk for opportunistic infections due to a variety of microorganisms. Infections caused by fungi are among the most frequent causes of death in the compromised patient. Candida species, Aspergillus species, and *Cryptococcus neoformans* account for the majority of these infections, the first two of which are, unfortunately, frequently discovered at autopsy due to pitfalls in clinical interpretation and limitations of laboratory methods. In contrast, currently available laboratory techniques facilitate the ante mortem diagnosis of cryptococcosis. Because of the increasingly frequent recovery of *C. neoformans* in our laboratory, we recently reviewed our experience at Mayo Clinic.

Materials and Methods

The medical records of all patients from whom *C. neoformans* was recovered (between August 1975 and April 1981) were reviewed. The 142 patients were classified as follows: colonization, 80 patients; meningitis, 26 patients; invasive pulmonary, 16 patients; disseminated, 11 patients; urinary tract, 4 patients; and indeterminate, 5 patients. Colonization was characterized by the repeated recovery of *C. neoformans* from nonparenchymal respiratory sources, the absence of extrapulmonary involvement and with chest X-ray abnormalities (when present) ascribable to other disease processes. The diagnosis of invasive pulmonary cryptococcosis was made when *C. neoformans* was recovered from lung tissue obtained at surgery, autopsy, or via transbronchoscopic biopsy. Disseminated cryptococcosis was defined as involvement of two or more noncontiguous organs excluding the central nervous system.

Techniques for culturing and identification of *C. neoformans* and for detection of cryptococcal antigen have been described elsewhere.[1,2] The cryptococcal antigen in CSF and serum was done using the IBL Crypto-LA Test (Carter Wallace, Inc. — Cranbury, New Jersey). The nigrosin stain[1] was used in lieu of the India ink preparation for direct examination of CSF.

Results

Colonization group: *Cryptococcus neoformans* was recovered from 80 patients in the absence of invasive disease or dissemination; the average age was 62 years. The organism was cultured from respiratory specimens in 78 of these 80 patients. *C. neoformans* was recovered from nonrespiratory sources in two additional patients, one from a noninfected traumatic digital amputation wound, the other from a patient with stomatitis (swab culture). The most common underlying conditions in the group of "colonized" patients were chronic obstructive pulmonary disease, 22 patients; bronchogenic carcinoma, 14 patients; corticosteroid therapy, 13 patients; pulmonary metastasis from various solid tumors, 7 patients; pulmonary fibrosis, 6 patients; pulmonary sarcoidosis, 4 patients; and pulmonary tuberculosis, 4 patients. The majority of these patients had various underlying bronchopulmonary disorders, most commonly chronic obstructive pulmonary disease and bronchogenic carcinoma. Previous studies have noted these associations.[3] Corticosteroid therapy was another significant factor underlying colonization with *C. neoformans* (13 patients). Cryptococcal antigen in serum was sought in 47 of 80 patients (16 of whom had concurrent testing for antigen in CSF); antigen was not detected in any of these patients. Clinical follow-up was available for 60 of these patients. The length of follow-up ranged from 2 to 84 months with a mean of 23 months. Three of the patients died during hospitalization, and postmortem examinations did not reveal cryptococcal disease. None of the 60 patients for whom follow-up data was available subsequently developed invasive cryptococcal disease.

Meningitis: Twenty-six patients with cryptococcal meningitis were identified. The average age was 54 years, and all but two patients had serious underlying disease (corticosteroid therapy in 18, neoplasm in 10, diabetes in 5, and renal transplant in 3). Cultures from sites other than CSF were obtained in 24 of the 26 patients and *C. neoformans* was recovered from one or more of these sources as follows: blood (15/23), urine (12/18), respiratory secretions (7/9). Of interest was the poor sensitivity of the direct examination

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TABLE 1

Initial CSF latex agglutination titers for crytococcal antigen in 26 patients with meningitis

Titer	No.	Titer	No.
1:2048	3	1:16	4
1:1024	2	1:4	2
1:512	3	1:2	2
1:128	2	Undiluted	1
1:64	2	Not detected	3
1:32	2		

of spinal fluid for yeast using the India ink or Nigrosin stain; direct examination was positive in only 11 of 26 patients (42%). In contrast, the cryptococcal latex test for antigen (Wampole, Inc. — Cranbury, New Jersey) performed on the first lumbar puncture was positive in the CSF of 23 of 26 patients (89%) (Table 1). The three patients whose CSF had no detectable antigen were reviewed in detail: one had only a single colony of *C. neoformans* recovered from cerebrospinal fluid, another had no CSF abnormalities (cells, protein, glucose) suggesting very early meningitis, but the third case could not be explained. None of these patients had positive Nigrosin smears. Cryptococcal antigen in serum was positive in 9 of 14 patients (65%) with meningitis in whom the test was performed; 8 of these patients with positive serum antigens had cryptococcemia.

All of the patients with meningitis were treated with the combination of amphotericin B and 5-fluorocytosine. Five of the 26 patients (19%) died during or shortly after therapy (Table 2); there were no relapses. Multisystem failure, superimposed bacteremia, severe underlying disease and abbreviated therapy, rather than uncontrolled cryptococcosis, were responsible for most deaths, underscoring the importance of host status.

Of particular interest was a 74-year-old man with underlying prostate carcinoma and steroid-treated hemolytic anemia who had *C. neoformans* recovered repeatedly from urine for two years prior to the onset of clinical meningitis.

Pulmonary cryptococcosis: Clinical and laboratory characteristics of 16 patients with pulmonary cryptococcosis are shown in Table 3. All patients in this group had abnormal chest roentgenograms, demonstration of organisms compatible with *C. neoformans* and/or recovery of the organism from tissue, and the absence of extrapulmonary infection. Eleven patients (69%) had compromising host factors and five were normal hosts. Corticosteroid therapy was the most common predisposition. Presenting symptoms were similar to those reported by Kerkering.[4] Five patients had asymptomatic solitary pulmonary nodules. One (no. 11) had a history of biopsy-confirmed cryptococcosis with multiple pulmonary nodules that spontaneously resolved but recurred three years later; his chest X-ray subsequently resolved without therapy. The determination of cryptococcal antigen in serum was not helpful in this group of patients with "limited" cryptococcal infection; antigen was detected in only one (7.7%) of 13 patients in whom the test was performed. As previously reported, nonprogressive cryptococcal disease confined to the lungs in normal hosts does not usually require systemic antifungal therapy.[4]

Disseminated cryptococcosis: Clinical and laboratory data for 11 patients with disseminated cryptococcosis is show on Table 4. Disseminated disease is herein defined as having *C. neoformans* recovered from two or more noncontiguous sites (excluding cerebrospinal fluid) and/or positive blood cultures. Although cryptococci may be

TABLE 2

Characteristics of patients dying during or shortly after therapy for crytococcal meningitis

No.	Age	Disease	Steroids	Initial CSF	Therapy*	Comment
1	77	Diabetes	-	1:2048	5-FC, 12 days AMB 6 wk	Severe renal failure after AMB; organisms resistant to 5-FC; therapy incomplete
2	76	CLL	+	+ undiluted	5-FC & AMB, 3½ wk	Superimposed bacteremia; crytococcosis & gram-negative pneumonia at autopsy
3	51	Lupus erythematosus	+	1:128	5-FC, 2 wk AMB, 4 wk	Systemic vasculitis, multiple organ failure, GI bleeding, so 5-FC stopped; no autopsy
4	66	ITP, splenectomy	+	1:64	5-FU & AMB, <2 wk	Superimposed bacteremia; therapy incomplete; no autopsy
5	20	ALL	+	1:2048	?, 3-4 days	Acute leukemia; disseminated cryptococcosis at autopsy

*AMB, Amphotericin B; 5-FC, 5-fluorocytosine.

TABLE 3
Clinical and laboratory data for 16 patients with pulmonary cryptococcosis

No.	Age	Disease	Cortico Steroids	Serology	Therapy*	Out-come	Comment
1	34	Renal transplant	+ †	Neg.	AMB	Died	Associated CMV
2	56	None	-	Neg.	None	Alive	Spont. resolution
3	55	Rheumatoid arthritis	+	Neg.	Resection	Alive	Solitary nodule
4	62	Chronic active hepatitis	+	Neg.	None	Alive	
5	67	Vasculitis	+	Pos.	AMB, 5-FC	Dead	Disseminated varicella zoster
6	57	Rheumatoid arthritis	+	Neg.	5-FC, resection	Alive	5-FC failed
7	72	Brain tumor	+	ND	None	Dead	Nocardiosis
8	63	Lymphoma	+	Neg.	5-FC, AMB	Alive	
9	61	None	-	Neg.	Resection	Alive	Solitary nodule
10	75	None	-	ND	Resection	Alive	Solitary nodule
11	59	None	-	Neg.	—	Alive	Asymptomatic, recurrent pulmonary nodules
12	50	Chronic active hepatitis	+	Neg.	5-FC	Alive	Improved prior to treatment
13	63	Ca lung, diabetes	-	ND	Resection	Dead	Dead from underlying disease
14	64	Biliary cirrhosis	-	Neg.	AMB	Dead	Dead 4 mo after therapy
15	55	Rheumatoid arthritis	+	Neg.	Resection	Alive	Solitary nodule
16	51	None	-	Neg.	Resection	Alive	Solitary nodule

*Abbreviations as in Table 2.
†Adjunctive cytotoxic therapy.

TABLE 4
Clinical and laboratory data for 11 patients with disseminated cryptococcosis

No.	Age	Disease	Cortico-steroids*	Serology	Positive cultures	Therapy†	Outcome	Comment
1	57	Polymyositis	+	+	Blood, bronchus	AMB, 5-FC	Dead	
2	68	Lymphoma	+	+	Blood, urine	None	Dead	Died before therapy
3	60	Leukemia	-	+	Blood, urine, bronchus	AMB, 5-FC	Dead	1 day of therapy
4	68	Leukemia	+	ND	Blood	None	Dead	Terminal event
5	66	Leukemia	+	ND	Blood	AMB, 5-FC	Dead	Bacteremia
6	33	Lymphoma	+	ND	Blood	None	Dead	Terminal event
7	24	Hodgkin	-	ND	Blood, urine	None	Dead	Terminal event
8	68	Leukemia	+	+	Blood, sputum	AMB, 5-FC	Alive	Died 1 yr later
9	45	Lymphoma	+	ND	Blood, lung	None	Dead	Terminal event
10	65	Rheumatoid arthritis	+	ND	Blood, sputum	None	Dead	Multiple organ failure
11	32	Nephrotic syndrome	+	Neg.	Skin, sputum, gastric washings	AMB, 5-FC	Dead	Acute pulmonary (embolism)

*Or cytotoxic therapy or both.
†Abbreviations as in Table 2.

TABLE 5

Clinical and laboratory data for 4 patients with urinary tract cryptoccosis

No.	Age	Disease	Cortico-steroids	Serology	Therapy*	Outcome	Comment
1	52	Lymphoma	+	Neg.	None	Dead	Death unrelated, several months later
2	70	Lupus erythematosus; IgA deficiency	+	Neg.	None	Alive	Cryptococcuria repeatedly, 5 yr
3	34	Leukemia	+	Neg.	AMB	Dead	Brief course of AMB; extra-urinary site negative for cryptococci
4	71	Diffuse pulmonary fibrosis	-	Neg.	AMB, 5-FC	Dead	Death unrelated
5†	74	Prostate carcinoma	+	Neg.	None	Alive	Crytococcuria for 2 yr before cryptococcal meningitis

*Abbreviations as in Table 2.
†Also in meningitis group.

TABLE 6

Clinical and laboratory data for 5 patients from whom cryptococci were recovered but of indeterminate significance

No.	Age	Disease	Cortico-steroids	Serology	Positive cultures	Therapy*	Outcome	Comments
1	54	Lymphoma	+	Neg.	Sputum	None	Dead	Cardiac arrest 2 days after pos. culture
2	51	None	-	Neg.	Sputum, gastric washings	None	Alive	Solitary pulmonary nodule; pos. for *H. capsulatum*
3	56	Goodpasture syndrome	+	ND	Lung (post mortem)	None	Dead	Active pneumonitis, Goodpasture syndrome
4	74	None	+	Neg.	Transbronch. biopsy	AMB, 5-FC	Lost	Miliary pattern on CXR, renal mass; no response to 2 wk of therapy
5	70	Myeloproliferative syndrome	-	Neg.	Pleural fluid	AMB, 5-FC (brief)	Dead	Died elsewhere 1 mo later

*Abbreviations as in Table 2.

recovered from multiple extrameningeal sites in patients with cryptococcal meningitis, these patients are included in the meningitis group. Patients with disseminated cryptococcosis have significant underlying diseases, predominantly lymphoreticular malignancy. Many of these patients developed invasive cryptococcal disease shortly before death, thereby precluding an adequate course of antifungal therapy. Unfortunately, the diagnostic value of cryptococcal serology is indeterminate in this group due to insufficient data; in most cases, the test was not ordered because the diagnosis of cryptococcal disease was made immediately premortem.

Urinary tract: Five patients had cryptococci recovered exclusively from the urinary tract (Table 5), most of whom were on corticosteroid therapy, and all of whom were asymptomatic. Multiple attempts to recover the organism from other sites were unsuccessful. None of the patients in this group had indwelling bladder catheterization. Two of the patients had negative excretory urography. All of these patients had mild degrees of microscopic pyuria and hematuria. Patient no. 1 had two months of follow-up. Urine cultures were negative one month later. Patient no. 2 had numerous positive urine cultures for *C. neoformans* over a five-year period. However, from 1979 through the present he has had negative cultures. Patient no. 3 died at home one month after his positive urine cultures. No postmortem examination was done. Patient no. 4 died suddenly of respiratory causes two months later. No postmortem examination was done. Patient no. 5, discussed above, developed cryptococcal meningitis following two years of asymptomatic cryptococcuria. Whereas the urinary tract may be involved in systemic cryptococcosis, the five patients described here may have had urinary tract colonization, perhaps due to corticosteroid therapy and/or occult structural abnormalities of the urinary tract.

"Indeterminate" group: Five patients from whom cryptococci were recovered but in whom the clinical significance was uncertain are shown in Table 6. Patient no. 2 probably had respiratory tract colonization with cryptococci concurrent with a histoplasmoma; both complement fixation and immunodiffusion serology (H & M bands present) were positive for *H. capsulatum*.

Discussion

Invasive cryptococcal disease has been a well-recognized infectious complication of altered cellular immunity, specifically in the setting of Hodgkin's and non-Hodgkin's lymphomas or corticosteroid therapy. The patient population encountered during this review (1975-1981) is typical in this regard. However, in the last five years, renewed interest in *Cryptococcus neoformans* has occurred because of its association with acquired immunodeficiency syndrome (AIDS). Invasive cryptococcosis (predominantly meningitis with dissemination) was noted in 8 of 53 patients (15%) with AIDS studied at the National Institutes of Health Clinical Center.[5] Recently, Kovacs et al.[21] reported 27 patients with cryptococcosis and acquired immunodeficiency syndrome. *Cryptococcus neoformans* was the fourth most commonly recognized cause of life-threatening infections after CMV, *Pneumocystis carinii*, and Mycobacterium avium-intracellulare among AIDS patients seen at the NIH. Because our review was undertaken before the advent of AIDS, we will not discuss it further.

The manifestations of cryptococcosis range from asymptomatic respiratory tract colonization to multisystem infection. Patients with colonization of the respiratory tract typically have structural abnormalities of the airways and/or lung parenchyma. The curious association between pulmonary neoplasm and colonization with *C. neoformans* has been previously alluded to. Patients treated with corticosteroids also seem to have an increased incidence of respiratory tract colonization (13 patients out of 80). Respiratory tract colonization may be difficult to distinguish from true pulmonary cryptococcosis, particularly in the compromised host. The recovery of *C. neoformans* from sputum in association with recovery of the organism from extrapulmonary sites or demonstrating the organism in tissue establishes the diagnosis of invasive cryptococcosis. Treatment of pulmonary cryptococcosis depends on host status. Nonprogressive localized disease in normal hosts may not require antifungal therapy, whereas the compromised host with pulmonary cryptococcosis is at high risk for dissemination.[4]

Meningitis remains the most important manifestation of cryptococcosis and has been extensively discussed in the literature. Our patients with cryptococcal meningitis had similar clinical manifestations and predisposing factors (i.e., corticosteroid therapy, lymphoreticular malignancy, etc.) as those previously reported.[6-11] Although cryptococcal meningitis can occur in "normal hosts" it is most commonly observed in patients with impaired cellular immunity. The recognition and early initiation of antifungal therapy is critically important because treatment with a combination of 5-fluorocytosine and amphotericin B is highly effective.[12,13] None of our patients with meningitis died of uncontrolled cryptococcosis; interestingly, factors previously thought to be associated with a poor outcome[14,15] (i.e., positive blood cultures, high titer of CSF antigen) were not applicable in the current review. This may reflect the greater efficacy of the relatively recent use of combined antifungal therapy.

In contrast to other opportunistic fungal infections, the diagnosis of cryptococcosis, and particularly cryptococcal meningitis, is expedited by the availability of rapid, sensitive, and specific laboratory methods. Determination of cryptococcal antigen in CSF using latex agglutination techniques is easily performed, rapid, sensitive, and specific in the diagnosis of cryptococcal meningitis. Recently, Stockman and Roberts[16] described a method for removal of rheumatoid factor from CSF, rendering the test even more specific. In our experience, the sensitivity of the latex agglutination determination of cryptococcal antigen in CSF has a sensitivity of around 90% for the first lumbar puncture. Traditionally, the direct examination of cerebrospinal fluid using India ink or Nigrosin has been performed in most diagnostic laboratories when cryptococcal meningitis is suspected. Although reasonably specific and easy to perform, the India ink method had an unacceptably high incidence of false-negatives with a sensitivity of approximately 50% in our institution. The determination of cryptococcal antigen in serum in patients with meningitis is positive in roughly two-thirds of cases. A recent review at this institution of 35 patients with cryptococcemia found the serum antigen to be positive in approximately 90% of cases (unpublished data). It is likely that there is an association between the detection of cryptococcal antigen in serum and positive blood cultures for *C. neoformans*.

The significance of cryptococcuria deserves comment. Although symptomatic cryptococcal pyelonephritis and prostatitis have been described,[17,20] isolated cryptococcuria is usually asymptomatic. Five of our patients had *C. neoformans* recovered exclusively from the urinary tract on multiple occasions. Although one of these patients subsequently developed cryptococcal meningitis two years later, the other four probably had asymptomatic colonization of the urinary tract. On the other hand, cryptococcuria may be a manifestation of hematogenous dissemination. *C. neoformans* was recovered from urine in 12 of 18 (66%) of our meningitis patients whose urine was submitted for culture. Specimens from multiple sites including CSF, blood, urine, and respiratory secretions should be obtained and cultured when cryptococcal disease is documented or suspected, particularly in the compromised host. Lumbar puncture should always be performed in immunocompromised patients from whom *C. neoformans* is recovered from any other site, regardless of the absence of meningeal signs or symptoms. With early diagnosis, specific combination antifungal therapy with 5-fluorocytosine and amphotericin B can be initiated.

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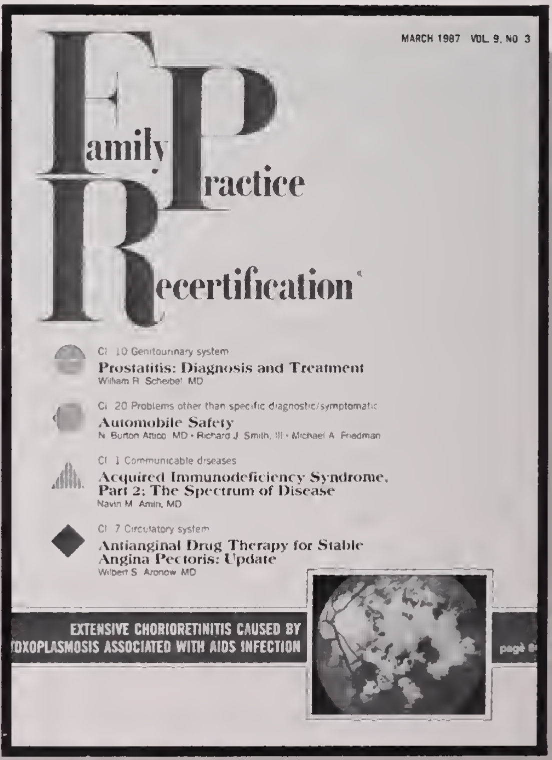

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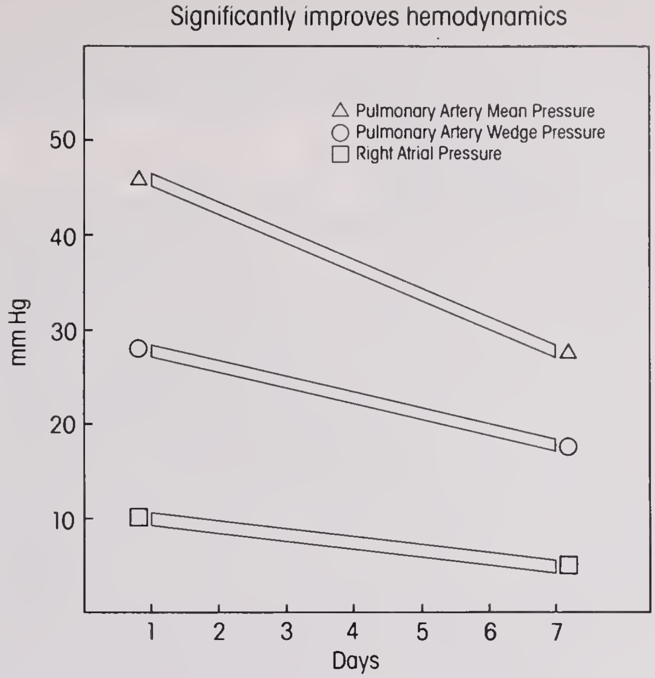

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Less frequent clinical adverse reactions are weakness, impaired hearing, rash, pruritus, hives, electrocardiogram changes, abdominal pain, arthritic pain, musculoskeletal pain and vomiting.
Other clinical adverse reactions are vertigo, chest pain, ear discomfort, fatigue, dehydration, sweating, hyperventilation, dry mouth, upset stomach, renal failure, asterixis, itching, nipple tenderness, diarrhea, premature ejaculation and difficulty maintaining an erection.
Laboratory abnormalities reported are hyperuricemia, azotemia, hyperglycemia, increased serum creatinine, hypochloremia, hypokalemia, hyponatremia, and variations in CO_2 content, bicarbonate, phosphorus and calcium. Although manifestations of the pharmacologic action of Bumex, these conditions may become more pronounced by intensive therapy.
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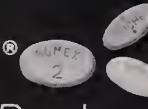

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Lyme Carditis: High-grade heart block in Lyme disease

Leslie K. Meyer, M.D., and Donald B. Swenson, M.D.#*

We describe an unusual form of high-grade heart block that developed during the course of Lyme disease. Diagnosis of Lyme disease is expedited by careful clinical history and/or recognition of erythema chronicum migrans. In this case, the cardiac abnormality responded rapidly to penicillin and systemic steroids.

Lyme disease, as first described by Steere,[1] is known to be transmitted by the Ixodes Dammini tick[2] and, in the West, by Ixodes Pacificus.[3] A treponema-like spirochete isolated from these ticks, taxonomically classified as a Borrelia, can be found in the skin lesions, blood, and spinal fluid of patients with Lyme disease.[4,5] The illness is characterized by the unique, diagnostic annular rash of erythema chronicum migrans (ECM), which begins as a papule at the site of a tick bite and expands to form an elevated erythematous ring with central clearing and advancing indurated border.[5,6] ECM is often accompanied by fever, malaise, and fatigue.[6] Patients may also develop an abnormal immune response, particularly those with B-cell alloantigen DRw2;[5] this response is associated with joint, neurologic, and cardiac conduction abnormalities.[2,4,5] The subject in this review had ECM, mild oligoarticular arthritic symptoms, and progressive symptomatic atrioventricular block.

Case Report

A previously healthy 27-year-old white male was admitted to the hospital with symptomatic heart block. Four weeks prior to admission, the patient was bear hunting in Canada and noted many ticks on his body, although he had no known bite. Approximately two weeks later, he began to develop progressive fatigue, arthralgia, and myalgia without true arthritis. He also noted a spreading rash on his left thigh and lower trunk with central clearing. One day prior to admission while jogging he experienced a great increase in fatigue accompanied by chest heaviness, and he had two near-syncopal episodes. When he sought medical attention, the patient was found to have a resolving erythematous rash, and an ECG revealed a significant first-degree heart block. He was hospitalized and placed on a cardiac monitor. His medical history was negative for rheumatic fever, arthritis, or cardiac abnormalities; his only known exposure was during his trip to Canada.

Admission physical exam revealed an alert young man in no acute distress whose blood pressure was 114/80 supine and 120/80 standing; pulse was 66 and regular; respiratory rate 20 per minute, and oral temperature 98.6°F. Exam of the pharynx, nervous system, lymphatics, and joints revealed no abnormalities. Auscultation of the heart revealed a normal first and second heart sound without gallop or murmur; PMI was noted at the fifth intercostal space in the midclavicular line without lift or heave. A faint erythematous rash was noted on his lateral left thigh.

Abnormal laboratory findings included an erythrocyte sedimentation rate of 24. Normal test results included the urinalysis, monospot, rheumatoid factor, and stool guiacs; hemoglobin was 14.9, and the white blood cell count was 8400 with a normal differential. A chest X-ray film was normal. The ECG showed a first-degree heart block with a P-R interval of .36 seconds (Figure 1), and an echocardiogram performed one day post-admission was completely normal.

Within eight hours of admission, the patient complained of increased fatigue and was noted to be in second-degree/Mobitz II heart block. This rapidly progressed to a third-degree block with an idioventricular rate of 50/min (Figure 2); he was given IV solucortef and a temporary pacemaker was placed, with 10-50% of beats paced initially. Thereafter, he was maintained on prednisone (60 mg/day), penicillin, and ecotrin. He continued to complain of chills, sweats, and fatigue, and had several episodes of asymptomatic bradycardia to 35/min when the demand pacemaker was turned down to minimum pacing. His heart block gradually resolved, and the P-R interval had decreased to .22 at the time the pacemaker was removed. The patient was discharged on 40 mg of prednisone per day as well as p.o. penicillin. However, he was readmitted four days later complaining of palpitations, and he was noted to have a new grade 2/6 systolic ejection murmur. Potassium, ESR, and repeat echocardiogram were all normal, and the ECG was normal except for mild repolarization changes. He was discharged after one day of monitoring

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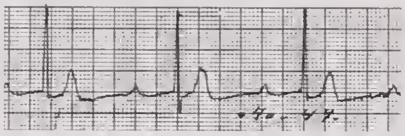

FIGURE 1 — Admission rhythm strip. Significant first-degree block with a rate of 68.

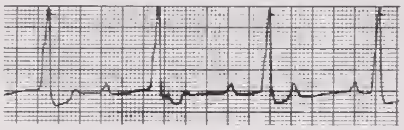

FIGURE 2 — Monitor lead rhythm strip. Complete third-degree block. Atrial rate approximately 130/min.; ventricular rate approximately 50/min.

with a diagnosis of supraventricular tachycardia. Discharge medications included quinidine (200 mg tid), pen VK, and 15 mg/day of prednisone, which was gradually tapered over several weeks. He has remained asymptomatic since his last discharge except for mild arthralgias.

Samples of the patient's serum were sent for serology testing to four independent laboratories in Minnesota and Wisconsin; all samples tested were positive for Lyme disease. Acute titers ranged from 1:256 to 1:2048, and convalescent titers ranged from 1:256 to 1:4096, with normal less than 1:256.

Discussion

Cardiac abnormalities are an unusual complication, found in 8-10% of patients with Lyme disease.[5,7] Steere et al.[5] studied 20 patients ranging in age from 6 to 58; he found the most common cardiac abnormality was a varying degree of A-V block, usually proximal to the bundle of His. The block was characterized by rapid fluctuation in degree of block, with some patients progressing from first-degree to complete block in a matter of minutes. Manifestations of cardiac involvement began an average of 21 days after the skin lesions of ECM first appeared, with a range of 4 to 83 days. Accompanying symptoms included palpitations, syncope, and chest pain; all patients with second- or third-degree block experienced one or more of these symptoms. Those with first-degree block tended to be asymptomatic or have brief episodes of palpitations.

Additional findings of more diffuse cardiac involvement were noted in half of affected patients, including S-T segment depressions and T-wave inversions. Radionuclide scanning showed depressed left ventricular fraction in four patients. Also noted in individual patients were myopericarditis, cardiomegaly, and a pericardial friction rub. However, all cardiac manifestations were transient, with a median duration of less than one week and a range of 0.3-24 weeks.

The subject of this report demonstrated a rapid, sequential manifestation of heart block from a significant 1° A-V block to complete 3° block requiring a temporary pacemaker, with the level of the block presumed to be at the A-V node. The conduction abnormality resolved within one week of diagnosis and institution of drug therapy, and within three weeks of the initial eruption of the ECM rash.

The cardiovascular manifestations of Lyme disease are associated with the circulating immune complexes that appear in response to the tick-borne spirochete; it therefore parallels serum sickness, the prototype of immune-complex disease.[6] The presence of cryoglobulins in the blood, while helpful in those with arthritic and neurologic abnormalities,[6] does not correlate well with cardiac involvement.[5] Antibody titers for Lyme disease are usually helpful, with a trend for the proportion of seropositives to increase with severity of illness.[8]

Steere[5] is uncertain as to the advisability of prednisone for heart involvement and noted that cardiac abnormalities were usually transient regardless of antibiotic therapy. He recommends hospitalization for patients with high-degree A-V block or first-degree block with a P-R interval greater than .30, as they are at greater risk of developing complete heart block. Patients with slightly prolonged P-R intervals may be followed carefully on an outpatient basis, with a restriction on exertional activities. Complete heart block may be managed with a temporary pacemaker and aspirin (325 mg/day). He advises prednisone at 40-60 mg/day in divided doses for those with complete block for greater than one week, or for deterioration of cardiac status with cardiomegaly. The dose may be tapered 5 to 10 mg/week. The ECM rash that usually precedes the cardiac changes may be treated with oral penicillin G 250 000 qid x 10 days or tetracycline 250 mg qid x 10 days (except in children). Erythromycin may be given to children or adults who are penicillin-allergic.[6]

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Adult Reye's syndrome: Discordance in hepatic subcellular function testing

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In Reye's syndrome the hepatocyte mitochondria are abnormal by electron microscopy. Carbamyl phosphate synthetase and ornithine transcarbamylase, two mitochondrial urea cycle enzymes, are transiently depressed. Hepatocyte smooth endoplasmic reticulum is normal to increased in amount. Reye's syndrome in adults has only rarely been reported. We report a case of Reye's syndrome in an adult male for whom the [^{14}C] aminopyrine breath test, a measure of smooth endoplasmic reticular function, was normal, while urea synthesis, reflecting mitochondrial function, was transiently reduced. This represents the first case of Reye's syndrome in which these two liver function tests have been applied.

Reye's syndrome has only rarely been reported in adults. The purpose of this paper is to add another case to the literature of adult Reye's syndrome — a case that presented a unique opportunity to study subcellular hepatic function in Reye's syndrome.

In 1975 Morse et al. reported a case of Reye's syndrome associated with an outbreak of influenza B in an adult male.[1] Varma et al. in 1979, reported four cases of Reye's syndrome in patients ranging in age from 16 to 23.[2] Also in 1979, Atkins and Haponik described a 51-year-old female with Reye's syndrome, the oldest patient with Reye's syndrome reported to date.[3] Stillman et al. reported a case in 1983 of a 22-year-old male with Reye's syndrome and reviewed the literature of adult Reye's syndrome, documenting fewer than 10 cases.[4] In 1984 Al-Tikriti et al. reported a fatal case of adult Reye's syndrome; they stressed the importance of treating cerebral edema in this illness.[5] In 1985, Ruskin and Houghton elucidated the CT findings in one case of adult Reye's syndrome; changes were similar to childhood Reye's syndrome.[6]

Electron microscopic studies done by Partin et al. in 1971 demonstrated proliferation of smooth endoplasmic reticulum, morphologically abnormal mitochondria, and swelling of mitochondrial matrix in livers of patients with Reye's syndrome.[7] Brown et al. reported transiently reduced activity of carbamyl phosphate synthetase and ornithine transcarbamylase, two mitochondrial urea cycle enzymes, in livers of Reye's syndrome patients.[8]

Based on these morphologic and histochemical findings, one would predict that in Reye's syndrome urea synthesis is depressed and that smooth endoplasmic reticular function is preserved or supranormal. We report here a case of Reye's syndrome in an adult in which the aminopyrine breath test, a measure of smooth endoplasmic reticular function, was normal while urea production was transiently reduced.

Case Report

In January 1981 a 37-year-old white male was admitted to his local hospital with persistent vomiting. He had been well until the previous week when he and members of his family contracted an illness characterized by fever, myalgias, sore throat, and a non-productive cough. Two days prior to admission he began to vomit. This persisted until admission and required intravenous therapy. Within hours of admission, the patient became increasingly lethargic and irritable. He was found to be disoriented, and he demonstrated marked perseveration. The patient's wife stated that during the preceding week the patient had taken several aspirins.

Physical examination showed a lethargic adult male. Temperature was 99.6°F. Pulse was 86 and regular. Blood pressure was 116/80, and respirations were 18 per minute. Examination of the head, eyes, nose, and throat documented sharp optic discs and the presence of venous pulsations. The neck was supple. Heart and lung exam was normal. Abdominal exam was unremarkable. The liver was nontender and of normal size. Neurological exam found the patient to be oriented to name only. He would not follow simple commands. Clonus was easily elicited at both ankles.

Hemoglobin was 13.9 grams. White blood cell count was 5,200. Serum electrolytes were normal. The serum glucose was 148 mg/dl. The SGOT was 5 x the upper limit of normal. Serum toxicology screen was negative. Lumbar puncture done on admission showed an opening pressure of 19 cm of water. Cerebrospinal fluid protein, glucose, chloride, and cell counts were all within normal range.

The initial impression was that the patient was suffering from Reye's syndrome. He was trans-

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ferred to the neurology intensive care unit at a referral center later the same day.

Upon arrival at the referral hospital the patient was stuporous, responding only to shouted name and painful stimuli. Physical exam confirmed the previous findings, except that the patient was observed to have occasional myoclonic movements. The SGOT was now 15 x the upper limit of normal. The bilirubin was 1.2 mg/dl and alkaline phosphatase was normal. The prothrombin time was 13.1 seconds (normal = 13 seconds or less). Plasma ammonia was 80 micromoles/1 (normal = 11-35). CT head scan was normal. Electroencephalogram was diffusely abnormal, compatible with a metabolic encephalopathy and typical for Reye's syndrome.

Because of the myoclonic activity, the patient was treated with intravenous diphenylhydantoin. Within 24 hours of referral, the patient was alert and fully oriented. A liver biopsy was performed on the second hospital day. Light microscopy with hematoxylin and eosin stain and oil red 0 stain demonstrated microvesicular fat. Electron microscopy showed swollen mitochondria and expanded mitochondrial matrix typical of Reye's syndrome. The patient continued to improve. The SGOT peaked at 22 x the upper limit of normal, returning to normal on the seventh referral day. The bilirubin peaked at 2.3 mg/dl, and rapidly returned to normal. Plasma ammonia was normal by the third referral day. An aminopyrine breath test obtained on the fourth referral day was 9.5% at 2 hours (normal > 6%). On the fifth hospital day the patient's 6-hour urine urea excretion after an amino acid load was 4796 mg (normal > 6000 mg). On the eighth hospital day the patient was discharged.

He returned to work and has continued to do well. Four months after discharge the patient underwent a repeat 6-hour urine urea excretion test with a result of 6159 mg.

Methods

The [^{14}C] aminopyrine breath test was done in the manner of Hepner and Vesell.[9]

The 6-hour urine urea excretion was performed in the following manner: After an overnight fast the subject starts a 6-hour urine collection. At time zero 14.5 grams of protein equivalent (as amino acids — Hepatic-Aid™) are ingested orally. At 3 hours, a second 14.5 grams of protein equivalent is ingested. No other food is consumed during the test period. Enough water is consumed to ensure a urine output greater than 30 ml/hour. Urea is determined by the diacetyl monoxime method of March et al., slightly modified for greater sensitivity.[10] Normal is greater than 6000 mg in 6 hours (n = 11, mean = 8444 mg, range = 5966 - 13161 mg).

The urea present in a 6-hour urine collection obtained after administration of a protein load at time zero is greater than 90% of total urea formed from that protein load (authors' unpublished data).

Discussion

Our patient meets all of the clinical criteria of Reye's syndrome as set forth by Atkins and Haponik.[3] He had an antecedent viral illness, vomiting, marked change in sensorium, mild hyperbilirubinemia, no cerebrospinal fluid pleocytosis, and no evidence of drug intoxication. The elevated SGOT and ammonia are supportive evidence. Hypoglycemia was not a feature of our case and has been noted in only one of the other reported cases of adult Reye's syndrome.

Our patient presented us with a unique opportunity in two respects. First, his adult status made [^{14}C] aminopyrine breath testing feasible (pediatricians tend to avoid administration of radioactive materials to their patients unless absolutely necessary). Second, his clinical course made possible the collection of an acute and convalescent 6-hour urine for urea.

One question regarding this report is "Was the first 6-hour urine collection complete?" If not, then, of course, the results are unreliable. We feel that the urine collections were accurate and offer as evidence the urine volumes. Our patient voided 400 mls in 6 hours on his first urine urea collection and 250 mls in 6 hours on his convalescent collection. Also, urine creatinine determinations on both collections were in the range of normal for an adult male.

Another putative criticism is that the aminopyrine breath test can be altered in the face of diphenylhydantoin therapy, yielding high results secondary in induction of smooth endoplasmic reticulum. This is undoubtedly correct, and diphenylhydantoin could have elevated our patient's value into the normal range. However, in our experience and that of others,[11] enzyme-inducing agents only occasionally mask detection of significant liver dysfuncton by the aminopyrine breath test.

We feel that the results of hepatic function tests in our patient are strong clinical corroboration of the electron microscopic and histochemical features of Reye's syndrome. Clinical testing of hepatic subcellular function is a new approach and probably has an application to other liver diseases.

Acknowledgment

The authors are grateful to Drs. Leslie Zieve and Gerald Onstad for their help and constructive criticism.

(references to p. 354)

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The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psychosocial difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week post-dose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: *Teratogenic Effects:* Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies,, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200"- Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

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*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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historical perspectives

An odyssey to the appendix

A centennial

Robert J. Campaigne, M.D., F.A.C.S.

Dr. Campaigne is a general surgeon at Miller-Dwan Hospital in Duluth, Minnesota, and a member of the Board of Editors of Minnesota Medicine.

One hundred years ago, Reginald Herber Fitz deduced that appendicitis progresses to abscess. He described this progression in his original manuscript in the American Journal of Medical Sciences of June 18, 1886.[1]

I dedicate this essay to the centennial celebration of this event culminating in an effort to eradicate a life-threatening process which today, because of clinical acuity, has all but been eliminated.

Inflammation of the appendix if probably as old as man. A literature review reveals that an Egyptian mummy was found from the Byzantine era with adhesions in the right lower abdominal cavity, suggesting that appendiceal inflammation existed at that time.[2] Anatomists such as da Vinci,[3] Versalius,[4] and Margagni[5] illustrated the appendix in detail.

There was a 200-year hiatus when little was written on the appendectomy and its clinical birth. The first recorded appendectomy was thought to be performed by Claudius Amyand[6] in December 1735 in St. George's Hospital, London, England. Because this operation occurred 100 years before the birth of ether anesthesia, the patient would have had to have the pain threshold of a dinosaur, and Dr. Amyand did write that the patient bore the surgery with "great courage."

Slowly physician investigators such as Metivier,[7] Hunter,[8] Parkinson,[9] and Dupuytren gained the knowledge to understand and control the disease. Dupuytren classified inflammation of the appendix as cecal in origin, using the German term "Typhlitis." He believed a sagging secum dragged down by gravity was the culprit![10]

Henry Hancock[11] was the first physician to associate perforation of the appendix and peritonitis. Lawson Tait[12] was the first to successfully remove an acutely inflamed appendix in 1880 in London, England. He felt, unfortunately, that appendectomy was an unnecessary risk to the patient, removing only one other appendix in 1890. He preferred to drain the cecum in cases of acute appendicitis.

The classic milestone by Fitz in 1886 opened a panorama of surgical expertise with such American surgeons as Parker,[13] Morton,[14] and McBurney[15] describing surgical approaches, timing of surgery, and care of the appendiceal stump.

At the turn of the century, the appendectomy became a most popular surgical procedure. Truly a democratic disease process, appendicitis spared no one, not even the medical greats such as Walter Reed, George Fowler, and Harvey Cushing.[16] Cushing, a surgical resident at Johns Hopkins Hospital, diagnosed his own symptoms of appendicitis and had his appendix removed, "most reluctantly," by his mentor, Halstad. Our own Owen Wangensteen[17] was subjected to the wrath of an angry appendix at age 9, although it was treated medically by the Ochsner method.

The popularity of appendectomy continued unabated, approaching zenith proportions when Edward VII's coronation was delayed five days when he was operated upon for acute appendicitis by Frederick Treves of London in 1902. The physician related that the king did well, but Treves did not sleep for a week.[18] It has been said the course of European history would have been altered had Treves's scapel been less accurate. As it was, Edward VII died eight years later, at which time all of Europe began preparations for the Great War.

A musical score was written about the vermiform appendix called the "Appendicitis Two-Step."[19] This short symphonic poem was composed by Felix Mendelsohn (distantly related to the famous Felix Mendelssohn-Bartholdy) of Chicago, who dedicated it to his physician, Louis L. McArthur, following the removal of Mendelsohn's appendix.

John D. Rockefeller, Jr., underwent a successful appendectomy around 1900 in Duluth, Minnesota, by the city's first trained surgeon, William H. Magie.[20]

With the understanding of this disease process, the physician for the first time in medical history was able to diagnose accurately and treat effectively with minimal morbidity and mortality an entity that had often been fatal.

Truly an American success story, the appendectomy has become the most popular operation in this country. Rough calculation would estimate that close to 10 million appendectomies have been performed since the turn of the century.

In summary, Fitz popularized the idea that removing the appendix cured appendicitis. His insight, logic, and interpretation of symptoms enabled medicine in general and the surgeon in particular to take a giant stride in the treatment of this clinical problem.

It would seem appropriate to dedicate a short poem to the appendix written in the form of a double dactyl by Seymour I. Schwartz, M.D.

Century — ventury
Harvard's Reginald Fitz
Wrote "appendicitis"
Then prodded us

To unsheath our scapels
And take out the organ
Transperitoneal
Ere it forms pus!

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Reye's Syndrome cont. from p. 348

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medicalegal brief

Informed consent: It's the law*

MMIE Risk Management Committee
Paul S. Sanders, M.D., Chairperson

The doctrine of informed consent developed out of the basic moral principle that every adult of sound mind is entitled to control what shall or shall not be done with his or her own body. A legal cause of action for negligent nondisclosure, or failure to obtain informed consent, was first adopted by the Minnesota Supreme Court in 1977. Since that time, the Court and the state legislature have reaffirmed and refined the obligation of the physician to obtain the informed consent of patients undergoing medical treatment.

What is Informed Consent?

Informed consent is the result of an educational process between the physician and the patient. The duty of the physician is to provide the patient with sufficient information about proposed medical care to enable the patient to make an intelligent and informed decision about whether or not to undergo the treatment. The patient involvement in the informed consent process is the understanding and evaluation of the information given by the physician and the actual consent to, or refusal of, treatment.

Informed Consent vs. Consent Forms

Physicians must distinguish a patient's general consent to treatment from the informed consent that is also required. Consent is based on the principle of law that individuals shall be the sole arbiters of who shall or shall not touch them. Touching another person without authorization to do so may constitute a legal wrong called "battery." Most consent forms used by hospitals are intended to protect against charges of battery. However, these forms seldom contain the essential elements of informed consent and cannot take the place of an educational discussion with the patient. A consent form signed by a patient without full understanding of what he or she is consenting to will not protect the physician against allegations of negligent nondisclosure.

What Must You Tell the Patient?

Under the Minnesota Patient's and Resident's Bill of Rights (MSA 144.651), physicians are to give patients "complete and current information concerning their diagnosis, treatment, alternatives, risks, and prognosis . . . This information shall include the likely medical or major psychological results of the treatment and its alternatives."

The Minnesota Supreme Court has stated that physicians must disclose risks or alternative treatment methods when a "reasonable person in what the physician knows or should have known to be the patient's position would likely attach significance to that risk or alternative in formulating his decision to consent to treatment" (*Cornfeldt v. Tongen*, 295 N.W. 2d 638,640 [Minn. 1980]). Court decisions around the country have clarified that physicians are not required to give the patient a "laundry list" of every conceivable treatment complication to obtain a valid informed consent. Many defense counsel recommend informing patients of frequent and severe risks and any additional risks that may be significant given the patient's individual circumstances. Elective procedures place the greatest burden of disclosure on the physician because knowledge of even a remote risk may cause a patient to forego elective treatment.

In general, information given to the patient should address:

1. the nature of the disease,
2. the nature of the proposed treatment,
3. the expected benefits of treatment,
4. the risks of treatment,
5. the expected outcome with and without treatment,
6. the alternative forms of treatment, and
7. the potential problems of recuperation.

Who Should Inform the Patient?

Obtaining a patient's informed consent to treatment is the responsibility of the physician and may not be

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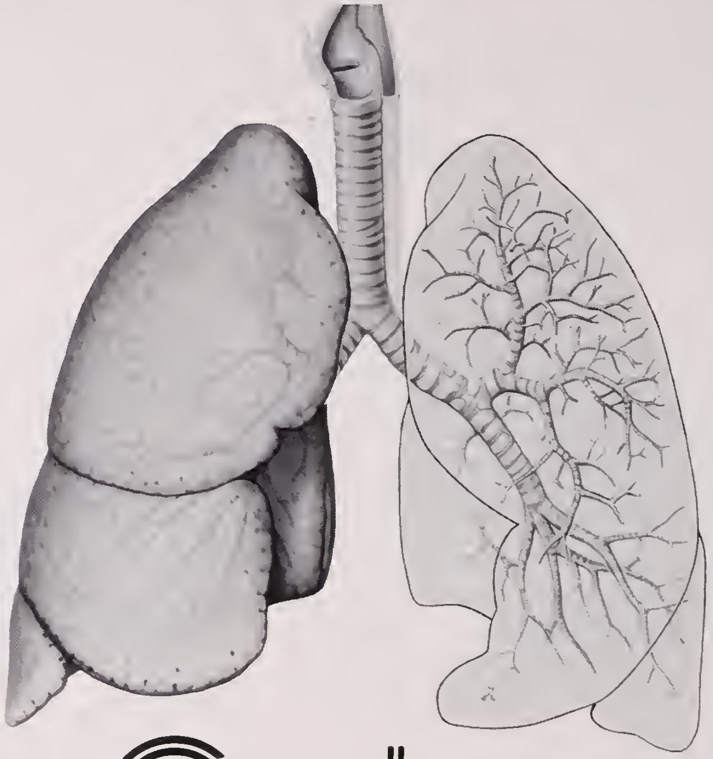
* Reprinted from: *Minnesota Medical Insurance Exchange Malpractice Prevention*, Vol 3-2, August 1984.

Consider the causative organisms...



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Haemophilus influenzae, Streptococcus pneumoniae
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Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

Ceclor® (cefaclor)

Summary. Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae, Haemophilus influenzae,* and *Streptococcus pyogenes* (group A β-hemolytic streptococci).

Contraindication:
Known allergy to cephalosporins.

Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

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delegated to any other person. Allied health professionals and printed material may be used effectively to reinforce the information presented by the physician, but the physician should not attempt to abdicate responsibility for this important element of the treatment process. If more than one physician is involved in the patient's care, each should obtain appropriate informed consent for his or her own phase of the treatment: the surgeon for surgical procedures, the radiologist for radiologic procedures, the anesthesiologist for anesthesia, etc. If another primary physician is overseeing the patient's care, he or she should also make certain that adequate informed consent has been obtained.

How Should You Inform the Patient?

Whenever possible, informed consent should be obtained during an open discussion between the physician and the patient. The Patient's and Resident's Bill of Rights states that information about treatment "shall be in terms and language the patients or residents can reasonably be expected to understand." The validity of an informed consent, therefore, depends on the patient's comprehension of the information provided. Physicians must be careful in informed consent discussions to use simple explanations and avoid technical jargon unfamiliar to the patient.

Excellent educational brochures are available and useful for reinforcing information given to the patient during the informed consent discussion. Recommended are the American Medical Association's "Patient Medication Instructions," which are written in easy-to-understand language and contain information about the proper use and side effects of specific drugs. PMI sheets can be ordered from the AMA.

A critical element in the informed consent process is the patient's opportunity to ask questions about the proposed treatment, so the process should take place in a relaxed setting with sufficient time for full and frank discussion. Involving a family member in the informed consent discussion will help ensure the patient understands the information and may later help protect the physician against a patient's faulty memory of the discussion.

When is it Not Necessary to Inform the Patient?

Disclosure of risks and alternatives is not required for treatment rendered under emergency circumstances when it is not feasible to obtain a patient's or family member's consent. Physicians must make certain that the situation is truly an emergency, however, and should carefully document the facts leading to the conclusion that there was no opportunity to obtain informed consent.

Physicians may also assert a "therapeutic privilege" and refrain from informing the patient about the risks and alternatives to treatment if they determine that such disclosure would be medically inadvisable. However, the therapeutic privilege is a controversial exception to the duty to disclose because of its inherent conflict with the patient's right to be informed. As in emergency situations, physicians must rely on the privilege only after careful determination of the patient's inability to handle disclosure and must fully document the factors in their decision to proceed without informed consent.

Often, patients will state that they prefer not to hear about potential complications and will accept the physician's decision regarding the best alternative treatment to pursue. The Patient's and Resident's Bill of Rights specifically states that patients have the right to refuse information offered by their physician. A patient's unwillingness to participate in an informed consent discussion should be thoroughly documented to prevent later allegations that the information was negligently withheld by the physician.

Documentation of Informed Consent

Many studies have shown that patients forget a great deal of what they are told by their physicians. It is critical, therefore, that physicians document the informed consent discussion in the medical record. The documentation does not need to enumerate every item discussed with the patient. A short entry stating that 1) the risks, benefits, and alternatives were discussed; 2) the patient indicated understanding of the discussion; and 3) the patient consented to treatment; will help defend against a later claim of negligent nondisclosure. If the patient states that he or she would prefer not to be informed, the documentation should indicate that an informed consent discussion was offered and that the patient declined the information.

Informed Consent and Risk Management

Although many physicians still regard the duty to obtain informed consent as a time-consuming bother, the time spent in discussing proposed treatment with the patient has distinct risk management advantages for the physician. A patient who has been informed about potential complications is less likely to sue for malpractice if one of those complications occurs. The discussion may also prevent unmeritorious claims based on misunderstanding or unrealistic expectations. Another by-product of the informed consent process is enhanced rapport and communication between physician and patient, a critical factor in claims prevention. Last, but certainly not least, informed consent is the law.

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Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

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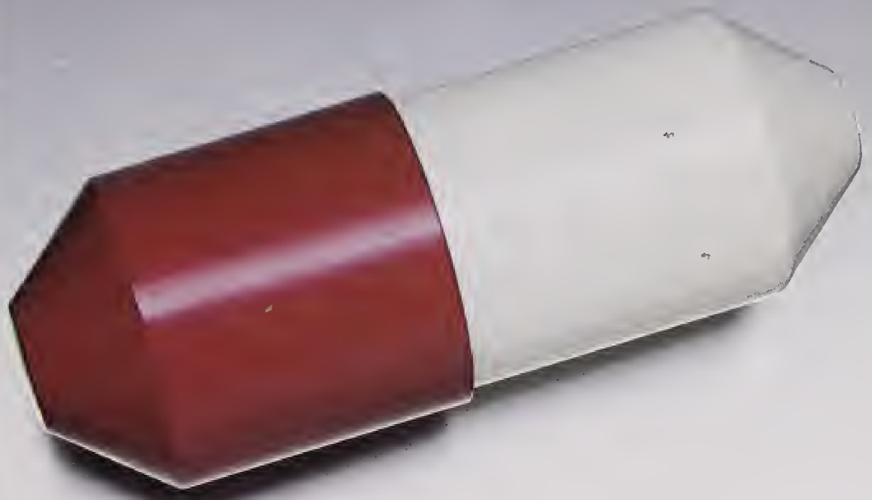

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For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

JUNE 1987

1-3 **Laser Surgery - Gynecology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

4-5 **Unstable Coronary Lesions** CME, University of Minnesota Medical School; Sheraton Park Place Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

5-6 **Workshops on Clinical Hypnosis** CME, Medical School, University of Minnesota; Earle Brown Center, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-12 **Laboratory Medicine** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

11-13 **Interventional Radiology** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

13 **Minnesota Obstetrical & Gynecological Society Spring Meeting** Minnesota Obstetrical & Gynecological Society; Fitger's Inn and Brewery, Duluth, Minnesota. CONTACT: T. M. Julian, M.D., Box 395, University of Minnesota Hospital and Clinic, Minneapolis, Minnesota 55455; (612) 626-6034.

16 **Orthopedic Surgery** CME; Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext 259.

17 **Ethics of Death and Dying: Experience of the Past, Lessons for the Future** Hennepin Faculty Associates; Pillsbury Auditorium, Hennepin County Medical Center, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 333-2113, Ext 75.

17-19 **Annual Surgery Course: Progress in Vascular Surgery** CME, Medical School, University of Minnesota West Bank, Willey Hall, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

19 **Taking Medicine into the 21st Century: Advances in Diagnosis and Clinical Management** Hennepin Faculty Associates; Normandy Inn, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 333-2113, Ext 75.

22-26 **Team Management of Diabetes Mellitus** International Diabetes Center, Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

24-26 **Topics and Advances in Pediatrics** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

26-27 **Eye Bank Enucleation** CME, Medical School, University of Minnesota; 2-125 Jackson Hall, Minneapolis, Minnesota. CONTACT: Office of CME, University of Minnesota, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

JULY 1987

6-10 **Team Management of Diabetes Mellitus** International Diabetes Center, Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

8-11 **Orthopaedic Surgery: Knee** CME, University of Minnesota Medical School; Minneapolis Marriott, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10 **Symposium on Clinical Neurology** University of Minnesota-Duluth School of Medicine; UMD School of Medicine, 10 University Drive, Duluth, Minnesota. CONTACT: Office of CME, UMD School of Medicine, 10 University Drive, Duluth, Minnesota 55812; (218) 726-7916.

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15 Emergency Medicine CME, Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, MN 55746; (218) 262-4881, Ext. 259.

15-19 Myocardial Infarction: The First Months Abbott Northwestern Hospital; Grand View Lodge on Gull Lake, Brainerd, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

JULY 30-AUG 1 Fourth Annual St. Paul-Ramsey Trauma Conference St. Paul-Ramsey Medical Center; Fox Hills Resort, Mishicot, Wisconsin. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

AUGUST 1987

18 Urology CME, Mesabi Regional Medical Center, Hibbing; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-25 Queen Elizabeth 2 and London — Travel Medical Seminar Program North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

AUG 22-SEPT 3 Midnight Sun Express and Alaska Passage — Travel Medical Seminar Program North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

28-29 Medical Directors CME, University of Minnesota Medical School; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

SEPTEMBER 1987

10-11 Hospital Nutrition Support CME, University of Minnesota Medical School; Holiday Inn Downtown, 1313 Nicollet Avenue, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-11 Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, 2525 Chicago Avenue South, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, Medical Education Coordinator, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

10-12 Teaching Geriatric Medicine CME, University of Minnesota Medical School; Radisson University Hotel, 615 Washington Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-25 Passage to India and Nepal North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

14-25 Fifth Annual Occupational Health and Safety Institute Midwest Center for Occupational Health and Safety; Earle Brown Center, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

16 Ear, Nose & Throat — CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-18 OB/GYN Annual Autumn Seminar CME, University of Minnesota Medical School; Hyatt Regency Hotel, 1300 Nicollet Mall, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-19 Tenth Annual Trauma and Critical Care Seminar Hennepin County Medical Center; HCMC, 701 Park Avenue South, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 347-2075.

18-19 Adolescent Medicine CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

21-25 Radiology 1987: Chest-Cardiovascular CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

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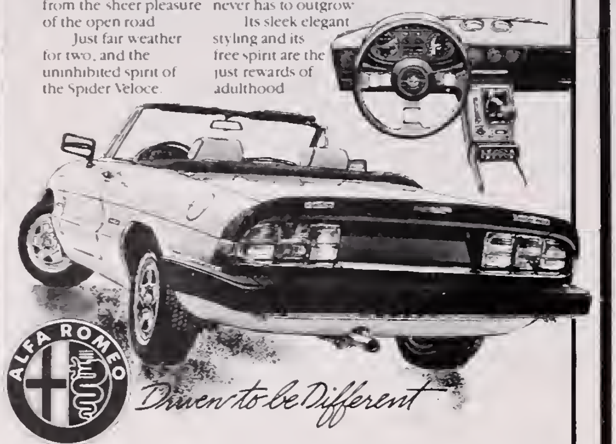

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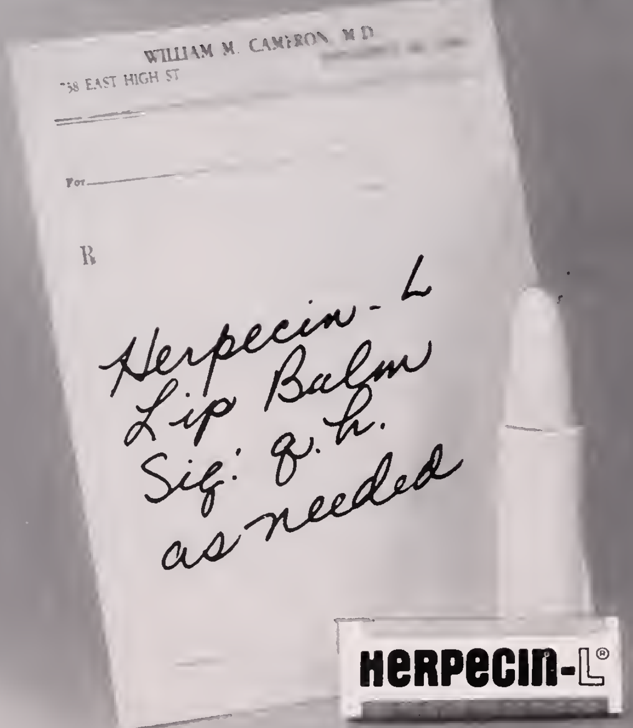

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Family Practice and Internal Medicine: Huron Clinic Foundation, Limited is a multispecialty group serving a trade area of approximately 50,000, has a practice situation where several members of the staff are near retirement and a ready practice would be available. A new member can start with NO CASH Investment, first-year salary guarantee, and many benefits, including malpractice insurance and a pension plan. The clinic is located next to a 120-bed JCAH-accredited regional hospital with excellent diagnostic and care capabilities. The clinic is currently pressed for a Board Certified/Board Eligible physician to take over a practice. Call collect (605) 352-8691 or contact any staff member or the clinic manager at the Huron Clinic, PO Box 822, Huron, South Dakota 57350. *6-10/87

General Internist: Join a well-established, multispecialty practice of family practice, general surgery and internal medicine. Take over an exciting internal medicine practice. Physicians are committed to internal medicine as an integral part of the practice. Located in western Wisconsin, 30 miles from Minneapolis/St. Paul, and close to the beautiful lake region. Modern and updated hospital facilities. Send CV to: Jim Miller, Administrator, New Richmond Clinic, 821 West 8th Street, New Richmond, Wisconsin 54017, or call (715) 246-6911. 2-6/87

Mork Clinic, a multispecialty group in Anoka, is looking for a family practitioner to join our staff. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 6-10/87

Family Practitioner to join a multispecialty group comprised of family practitioners, internists, general surgeons, and a pediatrician. Located 75 miles north of Duluth, the area offers a wide variety of outdoor sporting activities. The medical community service area is 30,000. The school system is excellent. Modern 6-year-old hospital. Competitive first-year salary and comprehensive benefit package. Contact: Bayard T. French, M.D., Adams Clinic, PA, 2229 East 3 Avenue, Hibbing, Minnesota 55746; (218) 262-3425. 3-7/87

Positions Available for male/female locum tenes and family practice physician with special interest in women's medical care to join a multispecialty clinic in the northern suburbs of Minneapolis. Please call: Jeannine Schlottman, Administrator (612) 786-2700. 2-6/87

St. Paul Internists, PA Has openings for a pulmonary intensivist and invasive cardiologist, immediately, June 1987, and June 1988. Please contact: Frank J. Indihar, M.D., FACP (612) 224-4737. (R)

Family Practitioner wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Family Practice Department of 20 physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or call (612) 780-7032. 2-6/87

Two Board Certified Family Practitioners Needed for affiliate clinic of Willmar Medical Center. Excellent fringe benefits. Send CV to: Norris M. Anderson, M.D., 101 Willmar Avenue SW, Willmar, Minnesota 56201-3591. 3-7/87

180-Member Multispecialty Group Practice has immediate openings for Board Certified/Board Eligible family practice physicians. Various practice locations are available throughout a regional service area in eastern North Dakota and northwestern Minnesota. Family Practice Department is currently largest department within the multispecialty group. Send CV and references to: John Weir, Associate Administrator, Dakota Clinic, Ltd., PO Box 6001, Fargo, North Dakota 58108. 3-7/87

Family Practitioners: The Monroe Clinic, located 40 miles south of Madison, has openings in New Glarus and Brodhead, Wisconsin, satellites and a new clinic in northern Illinois. Excellent benefits. Partnership available. Resources of 55-physician multispecialty group. Contact: Robert H. Rieder, Administrator, The Monroe Clinic, 1515 Tenth Street, Monroe, Wisconsin 53566; (608) 328-7381. 3-7/87

Orthopaedic Surgeon: Well-established solo Board Certified orthopaedic surgeon is looking for another BC/BE surgeon who wants to live in a smaller community and practice quality general orthopaedics. The Northern Pines Orthopaedic Clinic is a newly remodeled, 4000 sq. ft. facility with in-house X-ray and PT. Office located one mile from well-equipped JCAH-approved 100-bed hospital. Practice serves county of 40,000 and parts of three adjacent counties. Grand Rapids is located in the heart of Minnesota's four-season vacationland, offering nearby lakes, excellent boating, fishing, and hunting, two ski resorts, three golf courses, large YMCA, and more. The community has a solid industrial base and one of the better school systems in the state. If interested in an exceptional practice opportunity in a family-oriented community, send CV to: J.W. Burnett, M.D., Northern Pines Orthopaedic Clinic, 111 Golf Course Road, Grand Rapids, Minnesota 55744. (R)

Family Practice: Six-person family practice group in Mora, Minnesota, seeks associate. Located 65 miles north of the Twin Cities in the heart of fishing and hunting country, the practice offers an excellent opportunity for professional and personal growth with expanding practice, comprehensive salary and benefit package. Contact: Larry Brettingen, M.D., Mora Medical Center, Ltd., 224 — 7th Street, Mora, Minnesota 55051, or call (612) 679-1340.
3-7/87

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1-6/87

Radiologists Needed: Progressive 5-physician group is seeking two radiologists to join its expanding practice in Upper Midwest. One radiologist will assist the group in providing services to a large hospital and large multispecialty clinic practice. Experience in all modalities is essential. The second radiologist will provide general radiography, mammography, and ultrasound for several small rural hospitals. Both positions offer attractive compensation and benefits along with the opportunity to practice high-quality medicine. Submit CV and cover letter explaining expectations to: Minnesota Medicine (806), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 2-6/87

Emergency Medicine: Central Minnesota Trauma Center seeking full-time BE/BC EM physician to join group of EM boarded physicians. Competative salary and excellent fringe benefit package. For further information contact: David L. Frederickson, M.D., Chief, Dept of Emergency Medicine, St. Cloud Hospital, 1406 6th Avenue North, St. Cloud, Minnesota 56301 or call (612) 255-5657.
3-6/87

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 6-9/87

Family Practice: to join group of 10 board-certified family physicians. Three offices located in northwest suburbs of Minneapolis. Guaranteed first-year salary plus excellent benefits. Contact: Diane Shuck, M.D., (612) 476-6776 or 537-8405; Marie Hanauska, 537-8475; or write 5810 42nd Avenue, Robbinsdale, Minnesota 55411. 6-9/87

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Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30-bed acute and 86-bed long-term care facility with a clinic loacted next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minnesota 55072; (612) 245-2212. *(R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

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Wanted: Family Practitioner—Ob/Gyn Group practice, central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (755), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Family Practice, Internal Medicine, and General Surgery positions available at the Faribault Clinic. The Clinic is composed of eight family practitioners, two internists, and a general surgeon. Faribault is a community of 17,000 located 50 miles south of Minneapolis. Contact: Ken Smith, Administrator, Faribault Clinic, 924 NE First Street, Faribault, Minnesota 55021; (507) 334-3921. (R)

BE/BC Family Practice, Internal Medicine, OB/GYN & Psychiatrist: Excellent opportunity to join a well-established, progressive, 15-physician multispecialty group (7 FP, 4 IM, 2 GS, 1 OB/GYN, 1 DERM) located in an economically sound community of 19,000 (drawing area of 30,000), 65 miles south of Twin Cities. Full membership after one year. One FP retiring in 1987. Competitive salary and fringe benefit package. Contact: Pat Greenwood, M.D., or Jim Wilkus, Administrator, 134 Southview, Owatonna, Minnesota 55060; (507) 451-1120. (R)

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Private Practice Opportunities are available for Board Certified or Board Eligible Primary Care Physicians and Specialists in select communities in Texas and California. These opportunities range from solo practices to partnerships in multispecialty groups. Please send CV to: Maureen Bragg, Summit Health Ltd., 1800 Avenue of the Stars, Suite 1200, Los Angeles, California 90067. *2-7/87

Pediatrician and Obstetrician/Gynecologist: BCBE to join growing Ob/Gyn-Pediatric practice in clinic one hour from Twin Cities metro area. Salary plus excellent benefit package leading to partnership. Send CV to: Women & Children's Medical Center, 1520 Northway Drive, St. Cloud, Minnesota 56301. 3-8/87

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Physicians Needed: Opportunities nationwide!! Call (612) 633-4990 or send CV to: Earl Czech, North Central Staff Services, Inc., 443 — 8th Street NW, St. Paul, Minnesota 55112. 1-6/87

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Neurology, Hematology/Oncology, Rad. Oncology: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

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Orthopedic Surgeon: BC/BE to join me in my solo private practice of orthopedic surgery in Virginia and Hibbing, Minnesota. First-year salary would be competitive with incentive benefits and early partnership. Contact: Jay A. Davenport, M.D., Orthopedic Ltd., Northland Office Center, PO Box 943, 307 1st Street South, Virginia, Minnesota 55792 and talk to Dr. Davenport or Ron Egge for further details; (218) 749-2004. 2-7/87

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Available: Experienced Family Practitioner (BC) with training in geriatrics (BE) and administrative medicine. Write: Minnesota Medicine (811), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 1-6/87

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Locum Tenens — General/Family Practice Physician wanted immediately for 5-doctor clinic. Spend the summer on the beautiful North Shore of Lake Superior. Excellent salary with lodging and travel expenses paid. Contact: Steve Bjorum, Executive Director, or Lee Cohen, M.D., Community Health Center, 4th Street at 11th Avenue, Two Harbors, Minnesota 55616; (218) 834-2171. 2-7/87

Family Practitioner: Marshfield Clinic — Durand Center is seeking a board certified/board eligible family practitioner to join another family practitioner in an established office-based practice in Durand, Wisconsin. Durand offers a rural location with abundant outdoor recreational opportunities located in scenic western Wisconsin. The Durand Center offers the family practitioner the autonomy of a private, primary care practice plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges at the local hospital in Durand. Excellent salary and fringe benefits. Please send CV to: Robert Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449. Or you may call collect at (715) 387-5498. *3-8/87

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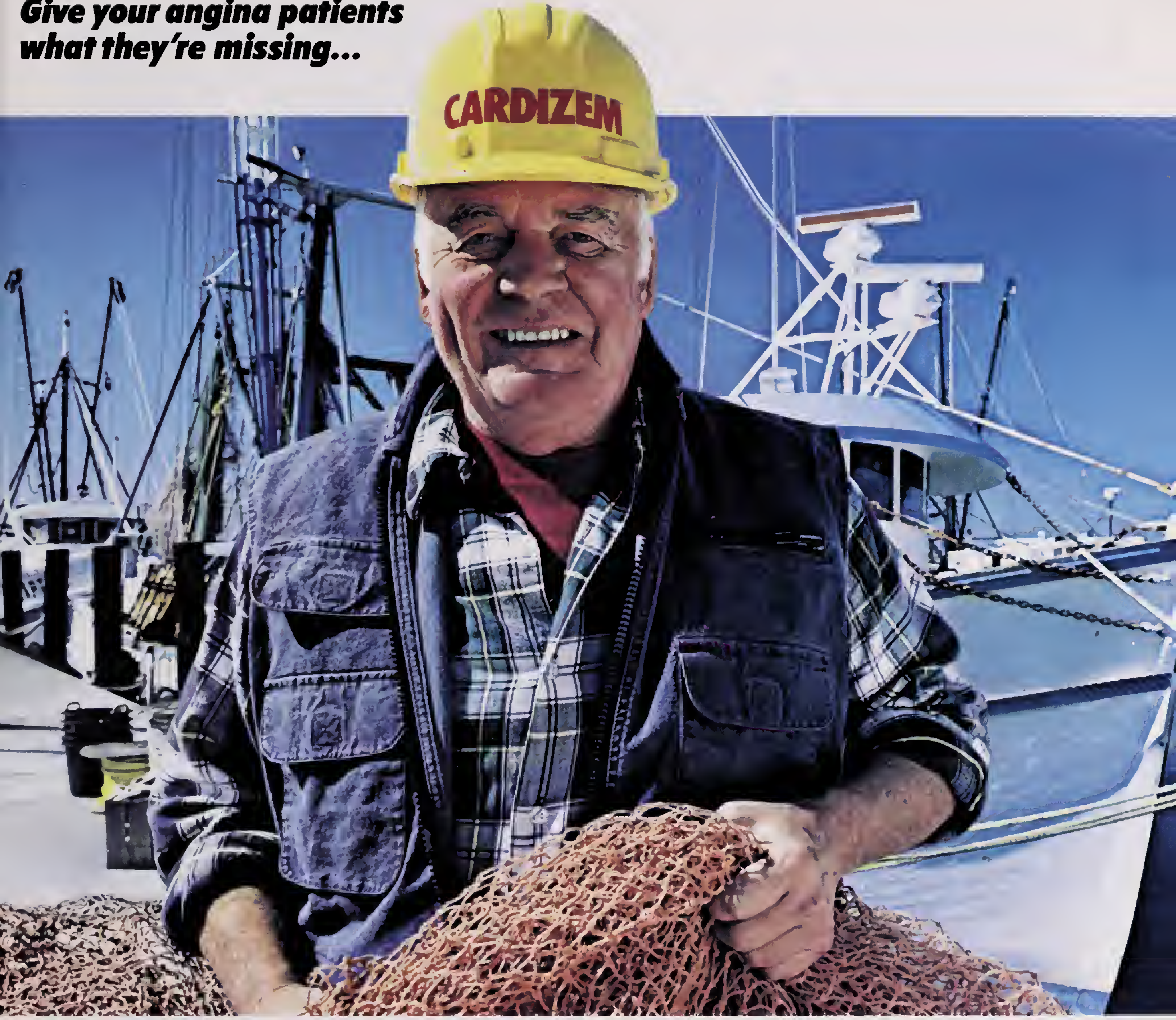

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****See Warnings and Precautions.***

Please see brief summary of prescribing information on the next page.

CARDIZEM® diltiazem HCl/Marion FEW SIDE EFFECTS IN ANTIANGINAL THERAPY

60 mg tid or qid

Brief Summary
Professional Use Information

CARDIZEM®
(diltiazem HCl) 30 mg and 60 mg Tablets

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. **Congestive Heart Failure.** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*

   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. **Acute Hepatic Injury.** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic:	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

Issued 7/86

See complete Professional Use Information before prescribing.

References: 1. *Pepine CJ, Feldman RL, Hill JA, et al: Clinical outcome after treatment of rest angina with calcium blockers: Comparative experience during the initial year of therapy with diltiazem, nifedipine, and verapamil.* *Am Heart J* *1983, 106(6):1341-1347.* **2.** *Shapiro W: Calcium channel blockers. Actions on the heart and uses in ischemic heart disease.* *Consultant* *1984 24(Dec):150-159.* **3.** *Johnston DL, Lesoway R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris. A placebo-controlled, double-blind, randomized, crossover study.* *Am J Cardiol* *1985,55 680-687.* **4.** *Cohn PF, Braunwald E. Chronic ischemic heart disease, in Braunwald E (ed).* *Heart Disease: A Textbook of Cardiovascular Medicine,* *ed 2. Philadelphia, WB Saunders Co, 1984, chap. 39.* **5.** *Schroeder JS. Calcium and beta blockers in ischemic heart disease: When to use which.* *Mod Med* *1982;50(Sept):94-116.*

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Cover Photograph

Loon at Sunrise

Carl M. Kjellstrand, M.D., found this loon celebrating the morning on Flour Lake in Minnesota's Boundary Waters Canoe Area. He took the photograph with an Olympus 25 with a 50 mm lens.

Dr. Kjellstrand is a professor of Medicine and Surgery at the University of Minnesota Medical School and an attending physician at Hennepin County Medical Center. On a two-year leave of absence, he is now at Karolinska Hospital in Stockholm, Sweden.

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president's letter

Prepaid Health Care: A Practitioner's Perspective

The seed for the creation and growth of prepaid health care originated with the enactment of Medicare by Congress in 1966. With its built-in cost-plus features, the Medicare program responded automatically to the inflationary spiral. Eventually, dramatic increases in health care costs resulted from a system which may prove to be the politician's dream and the provider's nightmare.

As health care costs skyrocketed, the same politicians who created the system, along with the large corporate purchasers of health care, cried out for relief from the burden of paying for large numbers of beneficiaries and employees. The push was on to do something about health care costs. Certain government leaders such as Wilbur Cohen, secretary of Health, Education and Labor, proposed reducing health care to a public utility in order to control the bottom line.

Searching for a counterpunch, the American Medical Association developed the so-called Competitive Model in the late 1970s. This model opened the door for Health Maintenance Organizations (HMOs) and for the dawning of the competitive decade of the eighties. By 1986, the HMOs' share of the market in the Twin Cities climbed to over 40%. Twin Cities physicians have observed this phenomenal growth of HMOs with mixed reactions. For example, some physicians are pleased that their number of patients has increased. On the other hand, many physicians ultimately resent the control the plans exercise over their practices and perceive that quality of care is threatened.

Market Factors

For many years, there was but one HMO plan. With the advent of federal subsidies and other factors, additional plans were established, creating a highly competitive market in the Twin Cities. The fierce battle that rages on is visible on the billboards and in the newspapers each day. Many of the ads create the false impression in the consumer's mind that the totality of medical care is fully covered by these plans without regard for the actual terms of the contract.

The expensive ad campaigns result from the need to compete, which also forces the plans to retain low prices. This high-cost advertising and the price cuts become a drain on the pool of money available for patient care.

L. Ashley Whitesell, M.D.

Prepaid health plans for Medicare patients and, to a lesser extent, Medicaid patients, have also expanded to cover more enrollees. Our federal and state government view these plans as a means to reduce costs. In a further effort to reduce costs, the Health Care Finance Administration pays less for the rural Medicare patient's health care than for urban patient care. In our clinic, the differential averages $40 less per patient per month. With 2,000 Medicare patients, our total loss amounts to $80,000 per month.

Physician Discontentment

Physicians participating in prepaid plans soon discover that the need for cost data is vital to their economic survival. The lack of current data from the plans necessitates that the physicians establish a mechanism in their practices to produce that data. In our clinic, we created a Quality Control Committee to review each referral and to receive each consultant's bill and copy of the hospital bill if the patient was hospitalized.

I believe the current system of contractual relationships between physicians and prepaid health plans will eventually defeat itself. The contract's cost control provisions place the physician in an adversarial role with the patient rather than allowing the physician to work as the patient's advocate. The prepaid plans are also using the physicians and hospitals as banks by withholding reimbursements at no interest while demanding that the physicians provide quality control at no cost to the plan. Such an arrangement cannot continue if the plans and the providers are to work together with any degree of mutual trust.

Also contributing to physician discontentment are the high HMO management company administrative costs. These costs deplete the dollars available for patient care and raise concerns about quality of care.

Two resolutions emerged from the MMA Annual Meeting this spring that indicate current physician sentiment. One calls for the elimination of conflicts of interest between HMOs and HMO management companies. The second resolution calls upon the MMA to

(continued on page 384)

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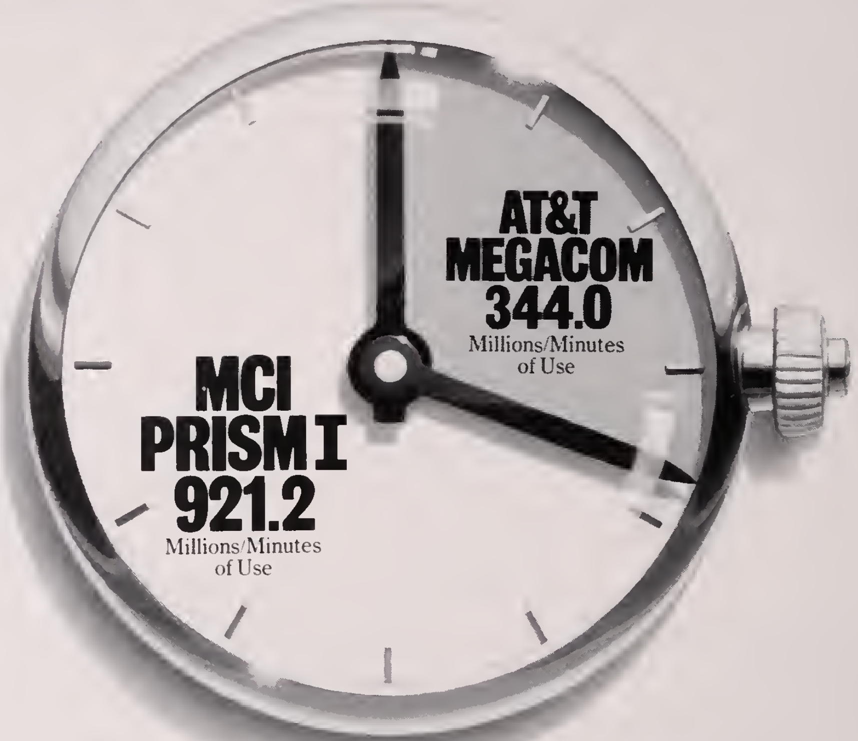

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perspectives

There must be no poison*

Thomas E. Kottke, M.D., MSPH

Dr. Kottke is a cardiologist in the Cardiovascular Division, Department of Medicine, at the University of Minnesota. He specializes in preventive medicine.

The other day I received a brief letter from a colleague who was protesting a recent committee recommendation that would make our hospital completely free of tobacco smoke. He wrote that he agreed with limited restrictions to smoking but argued in favor of certain areas where smoking had been allowed in the past. He wrote:

The object of no smoking is to protect the innocent, not to impose morality on those who smoke. The stress of hospitalization should allow somewhere where patients, relatives, and staff can go to smoke that is in the vicinity. I believe the past rules were adequate and protective to nonsmokers. If I read the present policy correctly, I believe the committee policy has become excessive.

My colleague presents three arguments for the preservation of smoking in hospitals: First, eliminating smoking altogether is an imposition of morality; second, illness-associated stress requires smoking; and third, current practices are adequate and the committee's suggested innovation is excessive.

His letter arrived as I was searching through Owen and Sarah Wangensteen's book, *The Rise of Surgery*.[1] The authors conclude that the science of surgery progressed only after the adoption of a simple innovation, hand washing for wound cleanliness. The fact that the likewise simple innovation of eliminating smoking could prevent more cancer deaths than our current chemotherapy and surgery programs[2] suggested an analogy that led me to see if arguments paralleling my colleague's had also been advanced against hand washing and wound cleanliness. Indeed, they had.

Puerperal fever was once considered a moral issue. Even after Semmelweis's controlled clinical trial demonstrated that hand washing reduced maternal mortality from 10% to 1%, others continued to argue that the widespread epidemics were the acts of God.[1] It took about 20 years and a new generation of physicians to acknowledge the importance of obstetrical hand washing.

Stress and the need for social support was also used as an argument against wound cleanliness. The surgeon E. S. Bishop lamented in 1908 that wearing masks and gloves would "terrify our patients out of what little courage they still possess."[3] The practice of wearing face masks in the operating room was not accepted by many British and European surgeons until nearly the beginning of World War II.[1]

Finally, the Wangensteens found that many surgeons believed that they had achieved the pinnacle of surgical excellence. "As early as 1579 Pare affirmed that surgery had reached its height and that the accomplishments of his day perhaps would never be excelled, a thesis reechoed by Boyer (1818), by Erichsen (1873), and in this century by Lord Moynihan (1926)."[1]

Smoking in hospitals is a health issue, not a moral issue; physicians' lack of initiative contributes to the deaths of 300 thousand patients each year. Smoking is an ineffective and potentially lethal agent for the management of stress; our patients and their families deserve the powerful and specific interventions offered by psychiatry, chaplaincy, clinical psychology, and social work when they are suffering from illness-associated stress. A smoke-free hospital is not excessive; permitting smoking in hospitals leads patients to believe that we approve of the practice.[4]

Near the end of their book, the Wangensteens wrote, "Strangely, surgeons chose to shun all suggestions of accountability for hospital mortality attending operations into the final two decades of the nineteenth century."[1] As strange to me, we have not yet left the era when physicians shun responsibility for clearly and unequivocally informing their patients about the health hazards of smoking.

Innovations in medicine share a common feature: all have been decried by someone at some time as excessive. In our search to improve the health of our patients through innovation while avoiding destructive excesses, the words of Semmelweis provide a clear standard. "There must be no poison on the physician's hand."[1] Smoke in the hospital is poison on our hands.

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special features

Diagnosis of the dementias

*Gabe J. Maletta, Ph.D., M.D.**

Dementia in the elderly is caused by a variety of organic dysfunctions. Diagnosis must include medical, physiologic, socioeconomic, and psychologic parameters. Differentiation among dementia, delirium, and depression is essential to ensure appropriate and effective treatment.

"Senility," "organic brain syndrome," "chronic brain syndrome," "cerebral arteriosclerosis," and "old brain syndrome" are a few of the many synonyms professionals and lay people use to describe the definitive diagnosis of a patient with global cognitive and behavioral deterioration.

Clearly all these terms, including the word dementia, are buzz words; they are without real meaning and therefore are useless for treatment plans unless defined in terms of specific inclusion and exclusion criteria.

Dementia may be defined as: *a clinical symptom complex in a patient marked by a gradual, persistent, and generalized deterioration of intellectual and emotional function from a previously higher level in an alert individual. This deterioration may be progressive, static, or remitting.*

There are several key concepts in this definition: *clinical symptom complex, gradual, generalized, persistent, alert, previously higher level,* and *progressive.*

Some specifics regarding the deteriorating cognitive and behavioral criteria include perception, attention, concentration, orientation, memory, abstract thinking, insight, judgment, speech (e.g., anomia, paraphasia), visuo-spatial ability, impulse control, lability of affect, and personality change.[1] Note, however, that the all-inclusive memory loss used in this context, i.e., retention, registration, and recall, is not to be confused with the normal short-term memory loss of specific incidents often seen in elderly individuals and designated as "benign senescent forgetfulness."[2]

Three major points must be considered concerning dementia: 1) If the unusual behavior *is* dementia, it can be due to a wide variety of organic causes, both intracranial and extracranial; 2) Following a biopsychosociocultural model, dementia must be considered a multifaceted problem—not just a medical one, but one that involves physiologic, socioeconomic, and psychologic parameters; 3) All unusual behavior in the elderly is not necessarily dementia; therefore, the differential diagnosis is very important, and the subsequent treatment modes will differ substantially.

Epidemiology: Organic mental disorders are the most prevalent psychiatric disorders of later life. The number of people over 65 in the United States continues to grow and will peak in 2025 at approximately 56 million, increasing the need for appropriate differential diagnosis of disturbed behavior in this population. Notably, by 1990, 2 of 3 men over age 60 in the U.S. will be veterans, and by the year 2000 there will be approximately 9 million veterans over the age of 65 in the United States (there are about 3 million now).

Although the incidence of dementia increases with aging, it is a myth to think that dementia will strike everyone at age 65. Although aging is a clear risk factor, dementia is *not* a normal physiologic consequence of getting older; it is a disease process. Only 5% of persons over 65 have signs of severe dementia.[3] When both severe and mild signs are considered, that number increases to approximately 15%.[4] By age 85, approximately 25% of the population shows signs of severe dementia. Although the incidence of dementia continues to increase with aging and is highest in people in their 90s, there is some evidence that the incidence may decrease in even older individuals.[5] However, these data are not clear.

Causes: Dementia has many causes, but in the elderly, the two major causes of dementia are primary degenerative dementia (PDD), also called senile dementia, Alzheimer's type (SDAT); and multi-infarct dementia (MID). Both are progressive in nature and cause about 75% to 80% of all reported cases of dementia in the elderly. Causes of the other 20-25% of the dementias are distributed among a variety of problems, including pernicious anemia, chronic hypothyroidism, normal pressure hydrocephalus, chronic mass brain lesions, and chronic alcoholism, among others.[6] Patients with depression or delirium, however, should not be considered demented, although often they may present with a combination of problems.

PDD accounts for about half of these cases of dementia in the elderly, with MID making up from 10% to 15%; combined PPD and MID may account for another 10% to 15%. MID refers to the cognitive

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loss resulting secondarily from multiple occlusions of small cerebral arteries over extended periods of time, often years. It has a more rapid onset than PDD and follows a "stuttering" or stepwise progression of cognitive loss; frequently, focal neurologic signs are seen along with the cognitive deficit, including numbness, tingling, weakness, asymmetry, slurred speech, and even seizures. Often there is also a patient or family history of high blood pressure, arrhythmias, other C-V diseases, diabetes, or sometimes hyperlipidemia. Pseudobulbar palsy with emotional lability is common, as is dysarthria or disphasia. Patients may also exhibit abrupt ischemic episodes that frequently lead to weakness, slowness, hyperreflexia, and sometimes a positive extensor plantar reflex. The primary vascular lesions causing MID may be found in extra-cranial arteries or in the heart, rather than always in the cerebral arteries themselves. The Hachinski ischemic index is helpful in quantitatively differentiating MID from PDD in elderly patients.[7]

CT scan may be useful in the diagnosis if one or more small areas of radiolucency are visible, but lacunar infarcts are often too small for CT resolution. The advent of magnetic resonance imaging as a diagnostic tool will greatly facilitate diagnosis of MID and other vascular causes of dementia, such as Binswanger's disease. Focal or asymmetrical areas of slowing on the EEG may also help differentiate patients with MID from those with PDD.

Dementia as a biopsychosociocultural model: Nutritional dementia is a good example of the biopsychosociocultural concept of dementia because it is a clear-cut, multifaceted problem. Many factors can lead to malnutrition, which in turn may cause symptoms of dementia. For example, malnutrition may be due to financial problems, physical problems of aging (dentures, chronic GI upset, pain, inability to shop), sensory problems (a decrease in olfactory and gustatory abilities), and psychologic factors (loneliness, unattractive or unpalatable food, depression, etc.). Therefore, diagnosis of any patient who presents with progressive cognitive loss requires a comprehensive view of the patient that goes beyond a narrow medical approach.

Illustration by Kathleen Berntson

Differential diagnosis: The diagnosis of dementia is based primarily on clinical observation and assessment of cognition, behavior, and function, making it easy to confuse dementia with other syndromes with similar signs and symptoms. Although dementia is sometimes underdiagnosed, it is most frequently overdiagnosed in the elderly patient, especially under the currently popular label of "Alzheimer's disease." This diagnostic label is mistakenly applied to patients who exhibit not dementia but severe neuroses, affective disorders (primarily depression), or paranoid psychoses, and even in patients who exhibit a clear sensorium. These misdiagnoses are often made simply because the patient exhibiting the unusual cognitive behavior happens to be elderly.

There is a final common pathway of signs of cognitive dysfunction, mentioned above, that are common not only to dementia, but to other clinical syndromes in the elderly, including delirium and depression. Therefore, it is crucial to carefully examine causes of unusual or even bizarre behavior in patients of this age group in order to make the appropriate diagnosis and to plan and provide correct treatment.

Delirium is a clinical syndrome in the elderly that can mimic dementia. Delirium (also known as acute confusional state) can be defined as: *a fluctuating disorder of attention and wakefulness, with associated dysfunction of perception, memory, orientation, thinking, and judgment*. There may be a frequent lability of affect, psychomotor disturbances, and a loss of reality testing (manifested by hallucinations and/or illusions). Delirium is rapid in onset and reversible in character and is caused by an acute disruption of brain metabolism.

When compared with younger people, the elderly have trouble maintaining homeostasis in the face of significant internal or external stress, perhaps due to decreased cerebral reserve with aging. Accounting for only 2% of our body weight, the human brain at any given point in time uses 65% of the glucose in the circulation and 20% of the body's oxygen. Thus, it is easy to understand why a relatively small deficit in either or both of these nutrients for even a short time may lead to marked cognitive or emotional dysfunction in the elderly.

The level of consciousness in patients with delirium may vary over time, ranging from relatively lucid early in the delirium to comatose. The patient's hallucinations are commonly visual but may also be auditory. Fear, anger, depression, sensory misperceptions, and anxiety (greater at night due to a decrease in sensory input, i.e., "sundowning") are also seen in delirium. This syndrome may last for days or weeks but rarely lasts more than a month. In cases where the patient is seen for a long enough period or a

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TABLE 1

Major causes of delirium in the elderly

- Drugs (Prescribed; Street; Off-the-Shelf; Social; Shared)
- Toxicity
  - Alcohol
  - Psychotropics (especially anti-cholinergics), bromide, and anti-Parkinsonians, including L-dopa; lithium; sedative-hypnotics
  - Digitalis, diuretics, anti-hypertensives, antiarrhythmics, corticosteroids, disulfiram, anticonvulsants, anti-inflammatory drugs, analgesics (opiates and non-narcotic), antibiotics, antineoplastics, cimetidine (ranitidine)
- Withdrawal (abrupt)
  - Alcohol
  - Sedatives and hypnotics
- Central Nervous System
  - Head trauma
  - Sub-arachnoid or epi-dural hemorrhage
  - Intracranial mass lesion (tumor, sub-dural, abscess, aneurysm)
  - Remote effects of carcinoma
  - Transient ischemic attack (TIA)
  - Thrombosis
  - Encephalitis (viral, bacterial, fungal, protozoa)
  - Meningitis (viral, bacterial, fungal, protozoa)
  - Embolism leading to minor or complete stroke (CVA)
  - Seizures (ictal or post-ictal); epilepsy
  - Lupus vasculitis
  - Arteritis
  - Hypertensive encephalopathy
  - Degenerative diseases (e.g., multiple sclerosis)
- Cardiovascular/Pulmonary
  - Anemia (dietary or rapid GI bleed)
  - Polycythemia
  - Myocardial infarction (may be "silent" in the elderly)
  - Cardiac arrhythmia
  - Congestive cardiac failure
  - Pulmonary failure or insufficiency
  - Acute porphyria
- Metabolic and Endocrine (acute)
  - Hypoxia
  - Diabetes mellitus
  - Hypoglycemia (also non-ketotic hyperglycemia)
  - Hypoglucocorticoidism (also hyper)
  - Hypothyroidism (also hyper)
  - Hypercalemia/hyperparathyroidism
  - Pituitary hypofunction (anterior)
  - Lipoprotein disturbances
  - Acid-base imbalance (H_2O intoxication, dehydration, inappropriate ADH)
  - Vitamin deficiency (thiamine, nicotinic acid, folate, B_{12})
  - Electrolyte imbalance (NA, K, MG)
  - Acute hepatic failure or insufficiency
  - Acute renal failure or insufficiency
  - Infection (with or without fever)
- Systemic/Local Infection (with or without fever)
  - Pneumonia (may be "silent")
  - Septicemia
  - SBE
  - Influenza
  - UTI
  - TB
  - Syphilis
  - AIDS
  - Cholecystitis
  - Diverticulitis
- Miscellaneous
  - Burns
  - Multiple trauma
  - Post-surgical state (particularly cardiac & eye surgery)
  - Intensive Care Unit syndrome
  - Extreme isolation or fatigue
  - Hypothermia, hyperthermia
  - Fever
  - Fecal impaction in the elderly
  - Urinary bladder distension in the frail elderly
  - Post-partum state

good history is obtained from a reliable informant, the differentiation of delirium from dementia is straightforward. However, if the aged patient is seen just once briefly, as frequently occurs in an emergency room, or is seen by someone with a limited or even "agist" mindset regarding the comprehensive problems of cognitive dysfunction, there may be some early difficulty in making a correct diagnosis.

There are many known causes of delirium (Table 1), and evidence suggests approximately 1 in 10 elderly patients diagnosed as demented may in fact be delirious instead. Drug toxicity is by far the primary cause of delirium in the elderly. This includes not only prescribed drugs, but off-the-shelf (no longer over-the-counter, which implies the involvement of a pharmacist), as well as street drugs, social drugs, and drugs shared by family and friends. The drug itself may directly cause the delirium. Also, side effects of a drug (especially the anticholinergics), an excess dose, a "normal" dose given to a frail aged patient, an abrupt discontinuation and/or drug-drug or drug-system interactions all may contribute to making an elderly patient delirious.

A combination of etiologies: When considering differential diagnosis in the real world, it must be stressed that disturbed behavior in an elderly patient is often the result of a combination of etiologies, e.g., a dementia plus a depression, a dementia plus a delirium, and occasionally a dementia plus a depression with an overlying delirium.

Dementia workup: Clearly, an accurate diagnosis is crucial to effect the appropriate treatment. An adequate workup of unusual behavior in an elderly patient should be done as early in the disease as possible. Treatment should always include patient and family and frequently requires a multi-dimensional approach, i.e., pharmacotherapy

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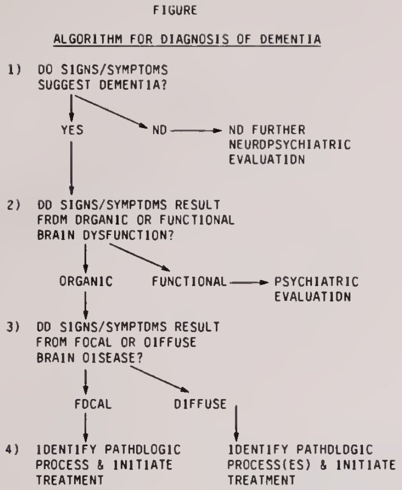
FIGURE
ALGORITHM FOR DIAGNOSIS OF DEMENTIA
1) DO SIGNS/SYMPTOMS SUGGEST DEMENTIA?
YES
NO
NO FURTHER NEUROPSYCHIATRIC EVALUATION
2) DO SIGNS/SYMPTOMS RESULT FROM ORGANIC OR FUNCTIONAL BRAIN DYSFUNCTION?
ORGANIC
FUNCTIONAL
PSYCHIATRIC EVALUATION
3) DO SIGNS/SYMPTOMS RESULT FROM FOCAL OR DIFFUSE BRAIN DISEASE?
FOCAL
DIFFUSE
4) IDENTIFY PATHOLOGIC PROCESS & INITIATE TREATMENT
IDENTIFY PATHOLOGIC PROCESS(ES) & INITIATE TREATMENT

FIGURE — Algorithm for diagnosis of dementia.

TABLE 2

Clinical features that may help differentiate depression from dementia in the elderly

Depression	Dementia
Clinical Course	
Family usually aware of dysfunction and its severity. Onset can be dated with some precision.	Family often unaware of dysfunction and its severity. Onset can be dated only within broad limits.
Clinical Behavior	
Patients usually communicate sense of distress.	Patients may/may not appear unconcerned.
Nocturnal accentuation of dysfunction uncommon.	Nocturnal accentuation of dysfunction common.
Marked variability in performance on tasks of similar difficulty.	Consistently poor performance on tasks of similar difficulty.

(Modified from Wells[11])

TABLE 3

Clinical tests for patients with cognitive dysfunction

- Blood tests
  - Complete blood count (including indices)
  - Serum chemistries
  - Electrolytes
  - Serologic tests for syphilis and AIDS
  - T$_4$, T$_3$RU, and FTI; TSH
  - Vitamin B12 and folate levels
  - Serum bromide, barbituates, and other drug assays as indicated.
- Urinalysis (including heavy metals if suspected)
- Chest X-ray
- EKG
- EEG
- CT scan or MRI of the head
- CSF analysis (only if indicated by neurologic focal signs)
- Further neurologic evaluation if indicated (including scinticisternography, fungal antigens, etc.)

and psychotherapy (including patient and family). An effective dementia workup often can be done on an outpatient basis. Following the essential components of any good workup, i.e., a comprehensive history and physical, a most orderly and efficient approach is an algorithm or "flow-chart" approach (Figure). After initial separation, the next step should be to differentiate depression from dementia or delirium. This may be done, or at least initiated, at the first clinic visit or at bedside. There are many paradigms for facilitating this separation; one of the most comprehensive, because it includes neurologic (frontal release signs) as well as cognitive assessment parameters, is the screening battery for diffuse cortical dysfunction described by Jenkyn.[8] If the patient falls into the dementia/delirium group following the initial differentiation, the well-known basic battery of tests (UA, CBC, serum chemistries, electrolytes, folate, B_{12}, thyroid screen, drugs, heavy metals, etc.) plus a well-standardized mental status examination (including a sensorium exam such as the mini-mental state[9]) and neuropsychological testing battery (to use as a base line for measuring future progression) are indicated.

The premorbid capacity of the patient and rate of onset of the problem are most important for differentiating delirium from dementia. An EEG and CT scan should be included in the workup. Neither an abnormal EEG (diffuse cortical slow-wave activity) nor an abnormal CT scan (thin cortical mantle, enlarged ventricles and deep sulci) is pathognomonic for dementia because of the overlap often seen in these tests between the normal elderly individual and the demented elderly patient. However, incorporating this important information in the initial data base will be helpful in making a final diagnosis.

The assessment of functional capability becomes particularly important if the patient is significantly cognitively impaired when first seen. Recently, Reisberg described an excellent functional assessment tool that should prove useful for staging Alzheimer's disease.[10]

Depression

Depression in an elderly patient is easy to confuse with dementia because of the frequent atypical signs and symptoms of depression. These include: psychomotor retardation whose cognitive changes mimic a dementia (pseudodementia); and/or an actual decrease in attention, perception, concentration, and memory abilities secondary to the depression, which can easily be misdiagnosed as a primary dementia. Some demented patients present with a secondary concomitant depression. Quantitative and reliable separation and clarification (if possible) of these very subtle differences present an intriguing and often very difficult problem for both researchers and clinicians.

Depression in an aged patient suggests a wide variety of etiologic possibilities, including drug use.

Several drugs fit this category including: methyldopa Aldomet®, reserpine, clonidine, propranolol, bromides, alcohol, barbiturates, benzodiazepines, digitalis, glucocorticoids, and some of the anti-psychotics (particularly depot Prolixin®). This potential cause or augmentor of depression must always be considered in elderly patients, who are often on a multitude of drugs for multisystem chronic disease. Additionally, many of the chronic diseases themselves may exacerbate or even cause a depression.

Evidence suggests that anywhere from 9% to 25% of elderly patients diagnosed as demented are in fact depressed.[12] There is some suggestion that depression may be more commonly seen in those elderly patients with MID rather than PDD, but this has not been substantiated.

A few ancedotal clinical features concerning clinical course and patient behavior are seen often enough that they may be of assistance in initial attempts at differentiating depression from dementia in the elderly (Table 2).

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President's Letter continued from p. 375

investigate obtaining an exemption from Minnesota law to allow physicians to bargain collectively. This resolution will also be taken to the AMA House of Delegates for action at the national level.

The Future

Considerable reform will be needed if the prepaid plans are to survive. Physicians and hospitals will no longer tolerate the "take it or leave it" negotiating posture that many of the prepaid plans currently use. It is my belief that it will be difficult for any plan that places itself in an adversarial position with its providers to maintain its market share. Finally, I predict that HMO penetration in the Twin Cities will drop to 30% in the future.

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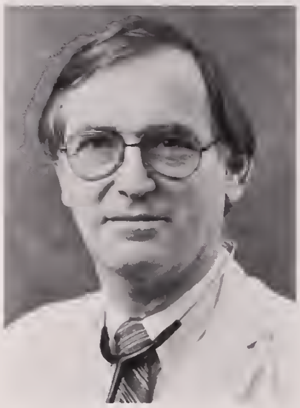

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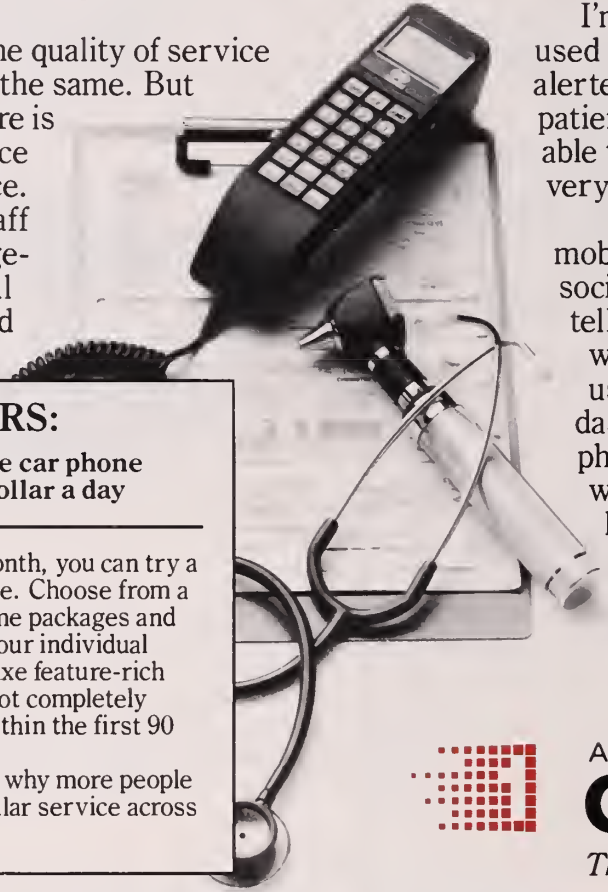

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A recent double-blind, placebo-controlled, crossover study in 138 hypertensive patients[2] revealed that INDERAL LA has a side effects profile unsurpassed by atenolol or metoprolol—which shows how well-tolerated once-daily INDERAL LA can be.

Sole therapy or concomitant therapy? Fifty-nine percent of the time, INDERAL LA stood on its own.

The patients in the nationwide compliance trial were no different from yours. Generally when the antihypertensive regimen is complicated, compliance may become a problem. So, the effectiveness of INDERAL LA as once-daily monotherapy is a big plus. Of the remaining hypertensives in the program, 36% were treated merely with the addition of a diuretic to INDERAL LA.

For the noncompliant patients in your practice, INDERAL LA may well be the answer.

Almost 20,000 of the patients in the nationwide compliance trial were identified as having been noncompliant with their previous antihypertensive therapy. Their physicians reported that 88% showed improved compliance when placed on once-daily INDERAL LA.

Control, comfort, and compliance

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Like conventional INDERAL Tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

*After a 30-day trial with INDERAL LA, physicians reported that 90% of the patients would remain on INDERAL LA.

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INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride INDERAL LA is available as 60 mg 80 mg 120 mg and 160 mg capsules

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites When access to beta-receptor sites is blocked by INDERAL the chronotropic inotropic and vasodilator responses to beta-adrenergic stimulation are decreased proportionately

INDERAL LA Capsules (60 80 120 and 160 mg) release propranolol HCl at a controlled and predictable rate Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol resulting from the slower rate of absorption of propranolol Over a twenty-four (24) hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings however such as hypertension or angina where there is little correlation between plasma levels and clinical effect INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina palpitations and syncope INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

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INDERAL® LA

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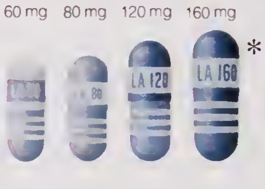

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can in some cases, lead to cardiac failure Therefore at the first sign or symptom of heart failure the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible)

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy Therefore when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted, however that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol However, such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers

DIABETES AND HYPOGLYCEMIA Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required Beta blockers may mask tachycardia occurring with hypoglycemia but other manifestations such as dizziness and sweating may not be significantly affected Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm Propranolol may change thyroid function tests increasing T_4 and reverse T_3, and decreasing T_3

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case, this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. GENERAL Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

CLINICAL LABORATORY TESTS Elevated blood urea levels in patients with severe heart disease elevated serum transaminase alkaline phosphatase lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension marked bradycardia vertigo syncopal attacks, or orthostatic hypotension

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction On rare occasions the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol

Ethanol slows the rate of absorption of propranolol

Phenytoin, phenobarbitone and *rifampin* accelerate propranolol clearance

Chlorpromazine, when used concomitantly with propranolol results in increased plasma levels of both drugs

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels

Theophylline clearance is reduced when used concomitantly with propranolol

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice employing doses up to 150 mg/kg day there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

PREGNANCY Pregnancy Category C INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

NURSING MOTHERS INDERAL is excreted in human milk Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman

PEDIATRIC USE Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular Bradycardia, congestive heart failure intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type

Central Nervous System Light-headedness, mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia, visual disturbances hallucinations, vivid dreams, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics For immediate formulations fatigue, lethargy and vivid dreams appear dose related

Gastrointestinal Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis

Allergic Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat laryngospasm and respiratory distress

Respiratory Bronchospasm

Hematologic Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura

Auto-Immune In extremely rare instances, systemic lupus erythematosus has been reported

Miscellaneous Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL Tablets to INDERAL LA Capsules care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION—*Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS—*Dosage must be individualized* Starting with 80 mg INDERAL LA once daily dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained Although individual patients may respond at any dosage level the average optimal dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—*Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimal migraine prophylaxis If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

*The appearance of these capsules is a registered trademark of Ayerst Laboratories

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2. Ravid M Lang R Jutrin I The relative antihypertensive potency of propranolol oxprenolol, atenolol, and metoprolol given once daily *Arch Intern Med* 1985, 145 1321-1323

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Neonatal outcome as a measure of obstetrical care

Susan J. Cushman, M.D.; Thomas M. Julian, M.D.*; and*
Peter M. Fehr, M.D.†

With the ever-decreasing role maternal mortality plays in evaluating quality of obstetrical care, the role of fetal and neonatal mortality has become increasingly emphasized. Prenatal care has become the focus of a major effort to improve fetal and neonatal outcome. We have learned to identify the high-risk mother and infant. Regionalized care has provided access to Level III care for a larger segment of the population. Still, Level III centers are under used, and not enough high-risk pregnancies receive appropriate care. While the answers to these problems seem obvious, they are not.

Ever since Semmelweis pleaded with physicians to wash their hands on the trip between the dissecting chambers and the delivery room, physician involvement in the birth process has led to improved maternal/infant health. As *William's Obstetrics* states: "The transcendent objective of obstetrics is that every pregnancy . . . culminate in a healthy mother and a healthy baby. Obstetrics strives to minimize the number of women and infants who die as a result of reproductive process or who are left physically, intellectually, or emotionally injured."[1]

Perinatal Mortality

In the past, the effectiveness of obstetric care has been measured by maternal mortality rates. As recently as 1935, maternal mortality in the United States was a substantial risk, at 582 maternal deaths per 100,000 live births. This rate had dropped to 8.9/100,000 live births in 1982, making statistical comparisons between institutions quite difficult. Neonatal mortality has replaced maternal mortality as a standard by which obstetrical care is judged.

Table 1 reviews the definitions used in mortality statistics. Unfortunately, these definitions are not uniform in the international literature. The greatest differences are in measurement of perinatal mortality, commonly defined as deaths between 20 weeks gestation to 28 days of life or 20 weeks gestation to 6 days of life. The first definition incorporates more fetal losses and later neonatal mortality. Perinatal mortality statistics also require accurate determination of gestational age, which is not always possible (Table 1).[1]

Neonatal mortality, death between birth and the first 28 days of life, is a more exact statistic, because the time interval can be accurately measured. Many national and international public health reports discuss *infant* mortality rates, encompassing neonatal and postneonatal time periods. Postneonatal mortality generally does not reflect obstetric factors except in the case of long-term neonatal intensive care unit (NICU) survivors who eventually succumb to events surrounding their birth.[2]

The major causes of neonatal mortality are very low birth weight (VLBW), respiratory distress syndrome (RDS), birth asphyxia, and infection. Because most cases of VLBW and RDS are due to prematurity, nearly half of neonatal deaths are related to this cause (Table 2).[3]

TABLE 1
The period of early life

Fetal — 20-week gestation to birth
Perinatal (a) — 28 weeks of gestation to 6 days of life
Perinatal (b) — 20 weeks gestation to 28 days of life
Infant — birth through first year

TABLE 2
Major causes of neonatal mortality

Weights less than 750 grams	24%
RDS	18%
Anomalies	21%
Asphyxia	15%
Infection	13%

In recent years deaths due to asphyxia, prematurity, and complications of pregnancy have declined; deaths from RDS rose prior to 1972, then declined. Mortality from anomalies, complications of cord or placenta, and birth injury have remained relatively constant.[4]

In the United States neonatal mortality has fallen sharply since 1950. In recent years the rate of decline has stabilized. Compared to other technologically advanced countries, the U.S. is on the same general curve but does relatively poorly considering the resources of our health care system. In 1982 and 1983 the U.S. ranked 14th in neonatal mortality (Table 3).[5] We do relatively better in maternal mortality, ranking 6th.[6]

Obstetrical Care

The years between 1965 and 1973 show the greatest improvement in neonatal survival. This interval saw the widespread availability of the neonatal intensive care unit, largely responsible for the improved outcome of babies with VLBW and RDS. Having skilled resuscitation

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TABLE 3

Rank order of neonatal mortality (deaths under four weeks) in technically advanced countries

Japan	5.2
Sweden	5.3
Norway	5.4
Finland	5.5
Denmark	5.7
Netherlands	5.9
Switzerland	5.9
France	6.0
Canada	8.0
Belgium	8.2
England and Wales	8.2
Federal Republic of Germany	9.3
Austria	9.3
United States of America	9.5

teams present at deliveries also improved outcome of asphyxiated infants.

Much, but not all, of the credit lies with the pediatrician. Major obstetrical efforts in the last 35 years include:

- better prenatal risk assessment,
- extension of prenatal care to socioeconomically disadvantaged,
- widespread use of intrapartum monitoring,
- attempts to prevent preterm birth,
- avoidance of traumatic vaginal delivery,
- amniocentesis to detect lung maturity and genetic disease,
- ultrasound for dating, diagnosis of multiple gestation, and detection of malformations.

Of these developments, prevention of preterm births has been the least successful nationally. The best obstetric and neonatal care centers have reached a high level of effectiveness which, if available to all pregnant women, could dramatically improve neonatal survival and morbidity. This country's socioeconomic differences, racial diversity, and geographic expanse partially explain our relatively poor neonatal mortality rate.

Maternal factors known to contribute to poor outcomes include those often associated with lower socioeconomic status: minimal education, very young or very old maternal age, and single marital status. Race also has a major impact on neonatal outcome. Dott's 1972 study in Louisiana showed blacks have higher neonatal and infant mortality rates than whites, even when other risk factors are controlled.[7] This study shows marital status, maternal age, and race affect infant mortality, with black infants having higher mortality rates at all junctures, except when the mother is very young. The same study showed the effect of maternal education on neonatal and postneonatal components of infant mortality.

A 1973 study by Stickle and Ma in upstate New York addressed some of these same issues, including maternal age, low education, and marital status.[8] Maternal medical complications in pregnancy and prior fetal loss were also considered. The object was to see if particular risk factors or combinations of risk factors led to poorer outcomes.

From pregnancies with only one risk factor, single marital status and medical complications in pregnancy each led to higher mortality rates than minimal education and prior fetal loss. Certain combinations of risk factors were particularly bad. The worst combinations were single marital status, minimal education, and medical complications plus prior fetal loss, suggesting that combined social risks are as ominous as combined medical risks.[8] The more risk factors present, the greater the mortality rate and the less likely a woman was to receive prenatal care beginning in the first trimester. In the New York study, late prenatal care dramatically worsened the outcome of nearly every combination of risk factors.[8]

Gortmaker compared prenatal care in New York City in 1969 and 1975, showing inadequate prenatal care adversely affected outcome mainly by producing more LBW infants. During the study period, the percentage of women receiving adequate care improved, from 84% in 1969 to 88% in 1975. Considerably fewer black women received adequate care—69% in 1969 and 78% in 1975. Inadequate prenatal care disproportionately increased the risk of poor outcome among black mothers as compared with the white population.[9]

Pregnancy outcomes of a religious group totally avoiding obstetrical care were studied by Kaunitz from 1975 to 1982. Pregnant mothers of the Indiana Faith Assembly were actually lower risk (being more likely to be between the ages of 20 and 34, married, and with at least a high school education) than the pregnant general population of Indiana. Despite these decreased risk factors, in cases where there was no obstetrical care the maternal mortality rate was 872 per 100,000 live births, nearly 100 times the Indiana rate. The neonatal mortality was 17 per 1,000 live births, twice the Indiana mortality.[10]

The impact of early prenatal care was demonstrated in a high-risk group of Sioux Indians. Despite their higher prevalence of socioeconomic and medical risk factors, Sioux receiving prenatal care before the third trimester actually had neonatal mortality rates better than the South Dakota general population, following initiation of a prenatal consultative program in collaboration with the Aberdeen Indian Health Service in 1976.[11]

In the mid-1960s two national efforts were made to decrease neonatal mortality in the United States—maternal infant care programs (MIC), which addressed socioeconomic problems, and regionalized perinatal care, which addressed geographic problems. MIC programs were a result of amendments made in 1963 to the Social Security Act and provided care to pregnant women and to their infants until one year of age in 56 areas with high infant mortality rates. In 1974 the responsibility was turned over to the states and each state is now required to have an MIC project.

Such programs are estimated to reach 15-20% of the high-risk pregnant women in the United States.[12]

Each MIC site studied showed significant reductions in neonatal mortality. However, these studies were not well controlled and did not differentiate MIC programs' impact on this decrease in infant mortality with decreasing nationwide mortality.

In 1980, pregnancy outcome of Minneapolis MIC participants was comparable to that of other Minneapolis residents, despite the significantly greater socioeconomic risk factors present in the MIC population.

Regionalization

Regionalization of perinatal care is a means of providing tertiary-level obstetric and pediatric care to a high-risk pregnancy. It calls for a close relationship between regional centers and referring hospitals with educational and transport services to enhance the care of high-risk patients. Patients at increased but lesser risk are delivered in a hospital with a Level II or III nursery, and low-risk patients are delivered in Level I hospitals. Emphasis is on antenatal referral, with neonatal transfer reserved for the sequelae of obstetric emergencies.

Success with regionalized perinatal care has been well documented.[12,13] One of the first models was begun in Phoenix in 1967. Within five years, Arizona rose from 35th to 3rd lowest in national neonatal mortality. In Alabama during the early 1970s, hospitals participating in regional care had a 20% lower neonatal mortality compared with similar nonparticipating institutions.

In the 1960s, Nova Scotia had one of the highest neonatal mortality rates in Canada, attributed to a poor, rural population served by widely spaced, small hospitals. In the mid-1970s after successful introduction of regionalized care, Nova Scotia had one of the lowest mortality rates in Canada.[14]

In Colorado, the introduction of regionalized perinatal care was associated with a dramatic decrease in neonatal mortality. Between 1971 and 1978, the mortality rate dropped from 13.4 to 6.9.[13]

During the same time period, the incidence of low birth weight infants was relatively stable as was the improved survival of low birth weight infants. The improved survival of low birth weight infants was partly attributed to a transfer of mothers at risk to Level II and Level III hospitals where infants were at less risk of dying than at Level I hospitals. The smallest improvement in neonatal mortality rate for the VLBW infant was seen in Level I hospitals.

Birth Weight and Infant Mortality

It is well known that neonatal survival relates inversely to birth weight. Some investigators have suggested that birth-weight-specific mortality rates should be nationally reported in addition to crude neonatal mortality rates.[14,15] Lee used birth-weight-specific mortality rates from 1950 to show how improved perinatal and neonatal care has decreased crude mortality rates, despite an increase in LBWs. Lee's perspective is that birth weight statistics reflect socioeconomic status of the population, while birth-weight-specific survival reflects the medical care received.[15] Guyer, comparing Massachusett's neonatal mortality rates with Sweden's, showed that given the same birth weight distribution, Massachusett's rates would be as low as Sweden's.[16]

Niswander's studies on neurologic outcome of asphyxiated infants suggest that morbidity as well as mortality has birth weight implications. In trying to determine whether intrapartum asphyxia was a frequent cause of cerebral palsy, Niswander found low birth weight babies to be at significantly higher risk for these problems even in the absence of asphyxia. Asphyxiated infants who survived had a four-year-old neurologic and intelligence testing comparable to an unasphyxiated control group and markedly superior to an unasphyxiated low birth weight group.[17] It may be that birth-weight-specific morbidity as well as mortality will be an important statistic in the future.

Another method of assessing the quality of perinatal care is to ascertain the percentage of neonatal deaths in an institution or geographic area secondary to unavoidable causes. Hein studied Iowa births in 1978 to 1980 and developed the concept of idealized neonatal mortality rates.[18] He considered major anomalies and birth weight less than 750 grams to be unavoidable causes of death, beyond the scope of modern intervention. Existing neonatal mortality rates multiplied by the percentage contributed by these two factors gives the idealized neonatal mortality rate.

Hein then looked at each level of hospital to determine where the most preventable deaths occurred. He found that Level I hospitals lost more than half the potentially salvageable infants in the state, despite a crude mortality rate of 6.6, the lowest of the hospital types. One reason for this is the disproportional number of neonatal deaths from asphyxia in Level I hospitals as compared with Level III hospitals, presumably due to less monitoring in Level I hospitals and limited resuscitation skills in the delivery room (Table 4).

Williams developed another method for assessing perinatal health care in California between 1970 and 1976.[19] He separated the 2.3 million births occurring during that time period into 1,186 risk groups representing various combinations of birth weight, gestational age, race, and sex of infant. He then looked at each group's observed mortality in a given county versus expected mortality based on statewide mortality statistics. In this

TABLE 4
Idealized mortality by hospital level*

Level	Crude Rate	Idealized Rate	# of Births	& Potential Salvage Infants
I	6.6	2.7	29,432	115
II	10.0	4.5	12,225	67
III	17.8	8.3	3,092	28
TOTAL	8.3	3.6	44,779	210

*(Iowa, 1978)

way, variations in risk were controlled and local deficiencies in obstetric and neonatal care were identified and targeted for improvement. The study showed that the best mortality ratios were found in large, urban delivery services serving a high-risk population and where Cesarean sections, monitoring, routine Apgar scoring, and involvement of specialists were more common.[19]

The Solution

What can obstetricians in this country do to improve outcomes? Much has already been accomplished, as the Minnesota MIC statistics show, in effectively extending prenatal care to an underserved population at high risk. But 80% of this pregnant population is still not receiving regular obstetric care.

We have learned how to identify pregnant women at high risk. With regionalized perinatal care, referral patterns for high-risk pregnancies have been clearly established in most parts of the country. Through continuing education and organizational efforts by tertiary centers, regionalized care can be expanded and refined to decrease infant mortality that is a result of being born in the "wrong" institution. Level I hospitals should not be lulled by their high volume of normal deliveries into unpreparedness for the obstetric emergency.

Finally, we need continuing research into the causes and prevention of low birth weight. It is tempting to say the problem is socioeconomic and not medical, but we cannot assume a medical event is caused by a social condition simply by association. That would be similar to saying one acquires cholera from living in a bad neighborhood, while ignoring the *Cholera vibrio* as an infectious organism. Similarly, you may not get LBW babies from being poor or disadvantaged, but from etiologic agents we do not understand. The failure of most interventional programs to prevent LBW shows we are unsure how to intervene against these unknown causes.

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contributions

In vitro fertilization
The University of Minnesota experience

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Since the birth of Louise Brown in 1978 approximately 5,000 children have been born following in vitro fertilization-embryo transfer (IVF-ET) worldwide. The birth of Elizabeth Carr in 1981 commenced the era of IVF in America. Currently, there are over 150 IVF centers in the United States. In vitro fertilization and embryo transfer at the University of Minnesota has also become a successful alternative for the treatment of infertility in selected couples. The following is a brief report of current IVF-ET results at the University of Minnesota.

Phases I and II

The University of Minnesota carried out Phase I of its IVF-ET program from August 1983 through June 1985. During Phase I, 32 patients underwent laparoscopy for ovum retrieval. In spite of successful oocyte retrieval and fertilization rates, no clinical pregnancies resulted. After intensive review of every aspect of the University's IVF-ET program, minor modifications of several techniques, protocols, and procedures were implemented. Phase II of the IVF-ET program was begun July 1, 1985. In late July 1985 our first two clinical pregnancies were diagnosed by ultrasound. Unfortunately, both of these pregnancies subsequently spontaneously aborted. Two clinical pregnancies commenced the successful phase of our program in October 1985.

Methods

During Phase II (July 1, 1985-December 31, 1986) 56 patients underwent laparoscopy for oocyte retrieval. Indications for these 56 IVF-ET cycles were: tubal factor, 41 (73%); male factor, 3 (5%); and unexplained infertility, 12 (22%).

Ovulation induction was initiated on cycle day 3. Human menopausal gonadotropins (hMG, Pergonal) was the sole medication used for ovulation induction throughout Phase II. Pergonal injections were administered at 4:00 p.m. daily.

Each patient was seen every morning for pelvic ultrasound, serum estradiol determination, and cervical mucus assessment. Pergonal injections continued until optimum follicular, estradiol, and cervical parameters were achieved. Typically 5-8 Pergonal injections were required.

Human Chorionic Gonadotropin (HCG, Profasi) was administered at midnight, either 32 or 56 hours following the final hMG injection. The patient was again seen at 7:00 a.m. following her HCG injection for ultrasound and serum estradiol. If there was no evidence of spontaneous ovulation, laparoscopic oocyte retrieval was performed at 8:00 a.m. the following day (32 hours post-HCG).

Ova were retrieved by laparoscopy in an operation suite located 30 feet from the IVF laboratory. Ova were immediately graded for maturity and were then incubated and fertilized accordingly. Embryo transfer (ET) of fertilized and cleaving pre-embryos was performed 48-50 hours following laparoscopy.

Luteal phase support was provided by daily injections of progesterone in oil. Serum levels of the hCG Beta sub-unit were obtained the eleventh and thirteenth days following laparoscopy. If the levels were rising, biochemical pregnancy was diagnosed. Once a positive serum pregnancy test was obtained ($BHCG \geq 35$ mIU/ml), injections of 17 alpha OH progesterone caproate were initiated and continued weekly to 18 weeks gestation. Progesterone in oil injections overlapped the 17 alpha OH progesterone injections by four days and were then discontinued.

Patients achieving pregnancy returned to our clinic at 6-7 weeks gestation for confirmation of intrauterine pregnancy. When ultrasonic examination demonstrated cardiac motion within the fetal pole, the patient was referred to her private obstetrician for prenatal care.

Results

Preovulatory ova were retrieved in 51 of 56 laparoscopies (91%). Forty-five cycles (80%) of IVF resulted in the transfer of either a fertilized ovum or of a cleaving pre-embryo to the uterus of the donor (Table 1).

Thirteen pregnancies resulted from the 56 laparoscopy cycles (23%). The diagnosis of clinical pregnancy required demonstration of an intra-uterine sac by ultrasound. Five of these pregnancies (38%) did not proceed past the first trimester. They resulted in: blighted ovum, 2 (15%); spontaneous abor-

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TABLE 1

University of Minnesota in vitro fertilization results

	Phase I 9/83-6/85				Phase II 6/85-12/86					
	No.	%A	%B	%C	No.	%A	%B	%C	%D	%E
A. Laparoscopies	32				56					
B. Preovulatory ova	30	94			49	88				
C. Ova fertilized (2 pronuclei)	24	75	80		45	80	92			
D. Transfers of cleaving embryos	22	69	73	92	40	71	82	89		
E. Clinical pregnancies	0				13	23	26	29	32	
F. Births and ongoing pregnancies*	0				8	14	16	18	20	62
G. Abortions	0				4				31	
H. Ectopics	0				1				8	

*Eight births (including two sets of twins), two ongoing singleton pregnancies.

TABLE 2

Patient profiles, clinical pregnancies (Phase II)
July 1985 — December 1986

PT#	Date of cycle	Age	Indication	Cycles Phase I	Cycles Phase II	Pregnancy results
1.	7/85	39	tubal	1	1	SAB; 7 wks
2.	7/85	34	tubal	1	1	MAB: 12 wks
3.	10/85	25	tubal	1	1	male delivered 6/30/86, term
4.	10/85	28	tubal	0	1	male delivered 7/7/86, term
5.	2/86	35	unexplained	0	1	male delivered 11/17/86, term
6.	4/86	39	unexplained	0	2	cycle 1, SAB blighted ovum
7.	4/86	37	tubal	0	1	female delivered 1/10/87, term
8.	5/86	31	tubal	0	1	twin gestation male & female delivered 2/19/87, 38 weeks EGA
9.	6/86	40	unexplained	0	2	cycle 1, SAB blighted ovum
10.	6/86	30	unexplained	0	1	twin gestation male & female delivered 2/14/87 36 weeks EGA
11.	9/86	38	tubal	0	1	ectopic
12.	10/86	31	tubal	0	1	EDC 7/20/87
13.	10/86	32	tubal	0	2	EDC 8/6/87

SAB: spontaneous abortion
MAB: missed abortion

TABLE 3

Results of embryo transfers (Phase II)

No. cleaving pre-embryos transferred	No. patients	No. clinical pregnancies	No. births and ongoing pregnancies
0*	5	0	0
1	16	2	0
2	13	4	3
3	3	2	1
4	7	4	3**
5	1	1	1

*Transferred fertilized one-cell pre-embryos.
**Two twin pregnancies.

tion, 1 (8%); missed abortion, 1 (8%); and, ectopic pregnancy, 1 (8%). Two pregnancies (15%) resulted in twin gestations. The ongoing/delivered pregnancy rate for Phase II was 8 of 56 laparoscopy cycles (14%). To date all singleton pregnancies and one set of twins have delivered at term via vaginal delivery. The second set of twins delivered at 36 weeks gestation, also vaginally (Table 2).

Indications for IVF in the 13 pregnancy cycles during Phase II were: tubal factor, 9 (69%) and unexplained infertility, 4 (31%). Twin gestations were achieved in one patient undergoing IVF-ET for tubal factor and in one patient with unexplained infertility.

Successful intra-uterine pregnancy following IVF-ET correlated well with the number of pre-embryos transferred. When 3 or more cleaving pre-embryos were transferred, the rate of pregnancy was 63% (7 of 11). Eighty-five percent of pregnancies resulted from transferring two or more cleaving pre-embryos. Two pregnancies (15%) resulted when only one cleaving pre-embryo was transferred, but neither progressed past the first trimester (Table 3).

Nine (69%) of the 13 pregnancies in Phase II were achieved during the patient's first IVF-ET cycle. Three patients conceived during their second Phase II IVF-ET cycle. Five additional patients who completed more than one IVF-ET cycle in Phase II did not become pregnant (four patients, 2 cycles each; one patient, 3 cycles).

Summary

Phase II results of the IVF-ET program at the University of Minnesota have been very gratifying. The pregnancy rate compares favorably with other successful IVF-ET programs. January 1, 1987, commenced Phase III of IVF-ET at the university. To date in Phase III we have recorded six pregnancies, including two sets of twins. Our current results suggest that in selected cases of infertility IVF-ET is a reasonable treatment option.

Outcome of severe closed head injury in the Midwest
A review and comparison with other major head trauma studies

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The outcome of severe closed head injury in 142 patients treated at Hennepin County Medical Center was analyzed and compared to the results of several other major head trauma studies. Criteria for admission to this study included a Glasgow Coma Scale (GCS) score of 7 or less at six hours post-admission. The outcome was assessed using the Glasgow Outcome Scale with subgrouping into favorable and unfavorable recoveries. The overall mortality for this series was 42% at the time of discharge. The favorable outcome rate at discharge, which includes patients with good recovery and moderate disability, was 37%. Low GCS scores, non-reactive pupils, and focal intracranial hemorrhages were all associated with poor outcome. The results of several major head trauma series were reviewed. Despite differences in patient population, location, and time the study was completed, we found similarity in outcome between centers. Mortality rates of about 40% to 50% seem to be standard for head injured patients who have GCS scores of 8 or less persisting for at least six hours post-admission. The favorable outcome rate in patients with severe closed head injury also varies from 40% to 50%.

Severe head injury continues to be a significant cause of morbidity and mortality in the United States. In the past ten years there have been numerous reports dealing with the treatment and outcome of closed head injury. The reported morbidity and mortality is similar from center to center when differences in patient population, categorization, and analysis are taken into account. This probably reflects the reasonably standardized management in treatment protocols between institutions. This paper analyzes the outcome from severe closed head injury at a regional trauma hospital in the Midwest and reviews several published reports on closed head injury.

Methods

A total of 2,006 patients were admitted to Hennepin County Medical Center (HCMC) with closed head injury between July 1980 and December 1982. This study reviews the 142 patients in that series whose Glasgow Coma Scale (GCS) score at six hours post-admission was 7 or less.[1] Patients whose admission GCS score was greater than 7, but who then deteriorated within six hours, were included. Patients who were brain dead after resuscitation and stabilization, those who died within six hours of admission, and those who suffered a gunshot wound to the head were excluded from this study. Most of the data were collected on a prospective basis starting from the time the patient arrived in the stabilization room.

The patients were initially stabilized at the scene and transferred by land to HCMC's multi-trauma stabilization room. Major non-neurological injuries were treated and stabilized. Neurological status was rapidly assessed and in most instances a CT scan done immediately. The patient was then brought directly to the operating room or to the intensive care unit for appropriate treatment of the neurological lesion. The usual modalities for treating head injury were instituted. All patients were artificially ventilated on a volume respirator to maintain an arterial pCO_2 at 25-30 mmHg. Normal body temperature was maintained with cooling blankets or medications. Osmotic agents were used as needed to keep the intracranial pressure (ICP) below 15-20 mmHg, and serum osmolarities were carefully monitored. The patients were kept sedated and muscle relaxants used if needed to control the ICP. Barbiturate coma was instituted in some patients when the above modalities were unsuccessful in controlling the ICP. Intracranial pressure monitoring devices (subarachnoid bolt or ventricular catheter) were used in the majority of cases. Neurological exams were done at frequent intervals and the GCS scores recorded. For purposes of this report, the GCS scores taken on arrival in the emergency room and at six hours, 24 hours, and one week post-admission were used. The medications used and the diagnostic evaluation performed were recorded. Patients who developed mass lesions in their hospital course underwent craniotomy when surgical treatment was indicated. The Glasgow Outcome Scale (GOS) was used to assess outcome on discharge, six months, and one year post-discharge.[2] Follow-up information for outcome scoring was obtained either through neurosurgical clinic visits or from the patient's hospital and/or outpatient chart. Statistical comparisons were made using contingency tables and Chi Square analysis.

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TABLE 1

Summary of patient population

Age (mean)	35 years
Sex	72% male
Race	
Caucasian	89%
Black	5%
Native American	6%
Cause of Injury	
Motor vehicle[a]	55%
Falls	28%
Other	17%
Complicating Injuries	
Multiple fractures	6%
Chest injury	10%
Multiple trauma	11%
Other	8%
Total	35%
Pupils	
Reactive	59%
Non-reactive	
bilateral	30%
unilateral	11%
Outcome (Discharge)	
Favorable	37%
Unfavorable[b]	63%
Dead	42%

[a] including vehicle-pedestrian

[b] Includes severe disability, vegetative, and death

TABLE 2

Distribution of successive GSC scores

			Post Admission					
	Admit		6 hours		24 hours		1 week	
GSC	#	%	#	%	#	%	#	%
3	37	26	32	23	20	16	7	7
4-5	34	24	33	23	28	23	22	21
6-7	48	34	77	54	41	33	19	19
≥8	23	16	0	(b)	35	28	54	53
TOTAL	142		142		124[a]		102[a]	

a) does not include patients who died

b) This is an artifact of inclusion criteria

Results

Characteristics of the patient population are summarized in Table 1. The mean age was 35 years with males accounting for 72% of the injured patients. Fifty-five percent of the patients were involved in an automobile, motorcycle, or vehicle-pedestrian accident.

The distribution of GCS scores at various times post-admission is reflected in Table 2. As shown, 26% of the patients on admission had a GCS score of 3, and 50% scored 5 or less. At six hours post-admission 46% had a GCS score of 3-5, and 54% scored 6-7. On admission, a total of 16% of the patients had scores greater than 7 which then deteriorated to 7 or less by the six-hour exam. The vast majority of patients in this series suffered immediate loss of consciousness at the time of the accident (90%). As shown in Table 1, 41% of the patients had either unilateral or bilateral non-reactive pupils on admission. Sixty-one percent of the patients suffered a skull fracture of some type.

The diagnosis of a focal intracranial hemorrhage was made in 74% of the patients. The distribution of the hemorrhages is reflected in Table 3. Seven percent of the patients were diagnosed as having primarily an epidural hematoma, 25% of the patients a subdural hematoma, and 18% an intracerebral hematoma. It should be noted that not all of these patients had mass lesions requiring craniotomy, with the total operation rate being 46%. In addition to the focal lesions, a significant number of patients suffered from subarachnoid hemorrhage (44%) or intraventricular hemorrhage (16%). Delayed post-traumatic intracerebral hematomas appeared in 11% of the patients.

The decision to monitor intracranial pressure was made based on the severity of the patient's neurological injury. Seventy-four percent of the patients had intracranial pressure monitoring, which was started either shortly after arrival in the intensive care unit or immediately after an operative procedure. Of the monitored patients, 46% had at least one sustained rise in intracranial pressure greater than 20 mmHg. Intracranial pressures greater than 40 mmHg were observed in 18% of the monitored patients (Figure 1).

As shown in Table 1, the overall mortality at discharge for this series was 42%. For analysis we have grouped outcome (Glasgow Outcome Scale) into favorable (good recovery and moderate disability) and unfavorable (severe disability, vegetative, death). At the time of discharge, 37% of the patients were classified as having had a favorable recovery, while 63% suffered an unfavorable outcome. At six-month follow-up, obtainable in 87% of the patients, the favorable outcome and mortality rates were 40% and 49%, respectively. At six months post discharge the percentage of patients who were severely disabled and vegetative decreased from 21% to 11%. Although there was a slight increase in the percentage of patients with favorable outcome there was a larger increase in the mortality rate at the six-month follow-up. This implies that the more severely disabled and vegetative patients tended to die within the six-month follow-up period.

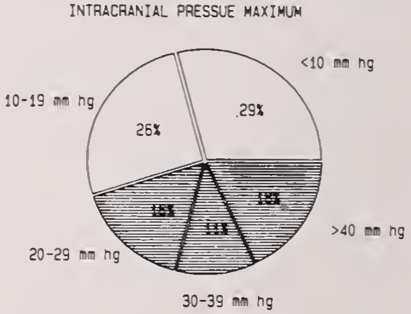

FIGURE 1 — Intracranial pressure maximum in patients monitored (n = 105).

Association between GCS and Outcome

As expected, the GCS score was significantly related to outcome, both on discharge and at the six-

TABLE 3
Focal intracranial hemorrhages

Hemorrhage Type	% of Patients
EDH alone	7%
SDH alone	25%
Intracerebral alone	18%
EDH & SDH	4%
Intracerebral & EDH	3%
Intracerebral & SDH	16%
Intracerebral & SDH & EDH	1%
TOTAL	74%

TABLE 4
Successive GCS score and discharge outcome

	GCS Score[a]							
	Admission[b]				six hours[c]			
	3	4-5	6-7	≥8	3	4-5	6-7	≥8
Favorable	19%	24%	56%	48%	6%	15%	60%	0%
Unfavorable[d]	81%	76%	44%	52%	94%	85%	40%	0%
Dead	62%	44%	27%	35%	78%	49%	23%	0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
n	37	34	48	23	32	33	77	0
	24 hour[c]				1 week			
	3	4-5	6-7	≥8	3	4-5	6-7	≥8
Favorable	5%	7%	46%	88%	0	9%	32%	83%
Unfavorable[c]	95%	93%	54%	12%	100%	91%	69%	17%
Dead	85%	57%	17%	3%	71%	36%	16%	6%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
n	20	28	41	35	7	22	19	54

a) Contingency tables — Chi Square analysis
b) $p < .01$
c) $p < .001$
d) includes severe disability, vegetative, and death

TABLE 5
Intracranial hmorrhage and discharge outcome

Type of Lesion	Outcome				
	n	Favorable	Unfavorable[a]	Dead	P value
Intracranial hemorrhage[b]					
No	22	68%	32%	14%	
Yes	120	31%	69%	47%	p<.01
Focal hemorrhagic lesions					
None	38	63%	37%	16%	
SDH	35	17%	83%	66%	p<.001
ICH	25	24%	76%	44%	p<.01
EDH	10	70%	30%	10%	NS

a) includes severe disability, vegetative, and death
b) intracranial hemorrhage of all types

TABLE 6
Pupil reactivity and discharge outcome

Exam	Outcome				
	n*	Favorable	Unfavorable	Dead	P value
Admission					
Reactive	83	52%	48%	24%	p<.001
Non-Reactive	57	16%	84%	67%	
6 Hour — Post Admission					
Reactive	78	70%	30%	15%	p<.001
Non-reactive	63	8%	92%	73%	

*some patients not included because of swelling

month follow-up evaluation. The association between low GCS score and poor outcome was present with each successive GCS score measurement. As shown in Table 4, a low GCS score on admission was significantly associated with poor outcome at discharge (P<.01). At six and 24 hours post-admission low GCS scores were also strongly associated with an unfavorable discharge outcome (P<.001). The association between the six-hour and 24-hour GCS score and outcome remained significant when outcome was examined at six months and 12 months post-discharge.

Effect of Intracranial Hemorrhage on Outcome

The association between various types of intracranial hemorrhages and outcome is shown in Table 5. In general, the presence of intracranial hemorrhage of any type was associated with unfavorable outcome (P<.01). With regard to focal hemorrhagic lesions, the presence of a subdural hematoma (P<.001) or intracerebral hematoma (P<.01) was significantly associated with unfavorable outcome. This is in contrast to patients with an epidural hematoma, who had a 70% favorable outcome rate.

Other Factors and Outcome

On admission, 30% of the patients had bilateral non-reactive pupils and 11% had a unilateral non-reactive pupil. These patients had a 67% mortality rate and a 84% unfavorable outcome rate. Conversely, the patients who had reactive pupils on admission had a 24% mortality rate and a 48% unfavorable outcome rate (Table 6). This association was highly significant (P<.001). Pupil reactivity at six hours post-admission also had a strong association with outcome. The presence of at least one non-reactive pupil was associated with a 73% mortality rate and a 92% unfavorable outcome rate. This can be compared with a 30% unfavora-

TABLE 7
Review of severe head trauma series

	HCMC	Richmond(1)	Glasgow(6)	L.A.(6)	San Diego(3)	Richmond(8)	Penn.(4)	Belgium(2)
# of cases	142	160	593	168	200	158(f)	1107(c)	109
% OR	46%	39%	54%	56%	28%	44%	44%	28%
GCS								
3-4	34%		17%	21%	37%	25%		26%
3-4-5	46%				50%		54%	70%
6-7	54%	(a)	52%(b)	66%(b)	50%	54%	46%(d)	30%(e)
Pupils(h)								
BNR	30%	21%	19%	31%		29%		
UNR	11%							
Multiple Trauma	35%		32%	51%	29%	48%(g)		71%
Outcome	Dis/6 mo(i)	3 mo.	6 mo.	6 mo.		3 mo.	3 mo.	6 mo.
1+2	37%/40%	60%	41%	31%	52%	47%	42%	48%
3,4,5	63%/60%	40%	60%	69%	48%	53%	58%	52%
Mortality	42%/49%	30%	48%	50%	36%	40%	41%	40%

Comment
a) failed to obey commands or utter recognizable words after resuscitation
b) 5/6/7 best response 24 hr.
c) 7 centers
d) 6-8 for >6 hours
e) Best in 24 hours
f) International Data Bank compatible
g) whole series of 225 patients
h) BNR = bilateral non-reactive; UNR = unilateral non-reactive
i) 6-month follow-up rate 87%

ble outcome rate for patients who had reactive pupils at six hours post-admission.

Among the patients who went to the operating room for evacuation of an intracranial hematoma, there was a 71% unfavorable outcome rate (44% mortality rate). In contrast, patients who did not require craniotomy had an unfavorable outcome rate of 55% (39% mortality rate). Although the need for evacuation of a hematoma was not significantly associated with a higher mortality rate, these patients did tend to have a poorer prognosis.

There was not an association between alcohol level and discharge outcome. Although we did not find a correlation between the age of the patient and outcome at discharge, we did find a marginally significant association between age and outcome at six months, with the older patients having a somewhat poorer prognosis (P = .05).

Discussion

The results of management of severe head trauma victims at a major Midwest trauma center are presented above. The following discussion reviews and compares a few of the major head trauma studies. As shown in Table 7, the variation among the studies cited is relatively small.

In 1977 Becker et al. published a study of 160 head trauma victims.[3] They reported excellent results with a 60% favorable outcome rate and a 30% mortality at three months post-discharge evaluation. This series included all patients who failed to obey commands or utter recognizable words immediately upon resuscitation in the emergency room. In a later report from the Richmond group, patients who had no eye opening, no verbal response, and did not obey commands for at least six hours following admission were included.[4] This group of patients had a 40% mortality rate and a 47% favorable outcome rate. The characteristics of the head injured population in this later series are similar to the population presented in this study.

In 1979 Jennett and Teasdale published some of the early results from the data collection at the International Data Bank for Head Trauma at Glasgow.[5] Glasgow and Los Angeles contributed 593 patients and 168 patients, respectively. As indicated in Table 7, both centers have a relatively low percentage of patients with a GCS of 3-4 as the best response in 24 hours. Although the Glasgow and the Los Angeles patients differed somewhat in their pupil reactivity scores on admission and the percentage of multiple trauma cases, their outcomes are similar, with a 41% and 31% favorable recovery rate and a 48% and 50% mortality rate, respectively.

A study published in 1980 by the San Diego group reported a relatively low mortality rate (36%) and a high favorable outcome rate (52%) as compared with other studies.[6] The percentage of multiple trauma patients (29%) and of patients requiring craniotomy for mass lesion (28%) was lower than those in other studies.

In 1982 the University of Pennsylvania published a study that was an accumulation of data from seven centers and 1,107 patients.[7]

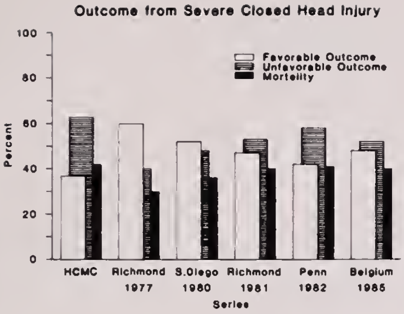

FIGURE 2 — Graphic comparison of outcome among several head trauma series. See Table 7 and text.

An assessment at three months found a 41% favorable outcome rate and a 41% mortality rate. Patients with GCS scores of 8 were included in the analysis.

In 1985 Born published a study of 109 severely head injured patients of whom 70% had a maximum GCS score of 3-5 by 24 hours post-admission.[8] This is a high percentage of low GCS score patients compared with most other studies. There was a relatively low percentage of mass lesions requiring craniotomy (28%) but a very high percentage of multiple trauma victims (71%). Despite the high percentage of patients with low GCS scores and multiple trauma, the patients in Born's study had a 40% mortality rate and a 48% favorable recovery rate.

The Hennepin County Medical Center's head injured patient population and the outcome in these patients is comparable to the studies discussed above (Figure 2). The slightly higher mortality rate in the HCMC patients can be partially explained by slight variations in the patient populations. The present study includes a high percentage of patients with mass lesions requiring craniotomy (46%), with bilateral non-reactive pupils (30%), and with low GCS scores at six hours post-admission (46%). Consistently found among all the studies is the association of low GCS score, pupil non-reactivity, or focal hemorrhagic lesions with poor outcome.

Conclusions

The outcome from severe closed head injury continues to be poor despite the aggressive stabilization and treatment strategies available today. Despite differences between studies with regard to patient population, location, and time the study was completed, there is a similarity in outcome between centers. Mortality rates of about 40% to 50% seem to be standard for head injured patients who have GCS scores of 8 or less persisting for at least six hours post-admission. Favorable outcome rates in this group of severe closed head injured patients also vary from 40% to 50%. Both basic and clinical research must continue to search for better treatment protocols for these patients.[9]

Acknowledgments

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The use of narcotic augmentation of cholescintigraphy for detection of liver lacerations

Irwin Weisman, M.D., Ph.D. and Steven Sirr, M.D., M.S.**

We report a case of liver laceration with an unsuspected bile leak that was unmasked using narcotic augmentation of cholescintigraphy.

Cholescintigraphy has been successfully used for diagnosis of hepatobiliary disease and in the evaluation of the postoperative patient.[1-4] Augmentation of hepatobiliary scintigraphy with intravenous morphine sulfate in selected cases[2] has been used to reduce the incidence of false-positive examinations of the gallbladder. The opiate-induced spasm of the Sphincter of Oddi was also useful in demonstrating an iatrogenic gallbladder perforation.[5] In this case we present a patient in whom intravenous morphine, given to enhance visualization of the gallbladder, was instrumental in unmasking an unsuspected hepatic bile leak.

Case Report

The patient, a 14-year-old white female, was involved in a motor vehicle accident and suffered blunt trauma to the abdomen and multiple pelvic and lower extremity fractures including a left posterior hip dislocation with disruption of the acetabulum. Emergency exploratory laparotomy demonstrated a small laceration of the liver not actively bleeding or oozing bile. The porta hepatis was disrupted and contained a small amount of blood. The liver laceration was not repaired. Blood loss was replaced with 2 units of packed red cells. The posterior hip dislocation was reduced in traction at this time.

A second set of surgical procedures was performed to reduce and stabilize the acetabulum and other fractures. This time the patient required 4 units of packed red cells to replace a 2000 cc blood loss. About three days after the procedure, an elevation of serum bilirubin, followed by a rise of alkaline phosphatase and amylase, was noted. Although SGOT was elevated on admission, it had been dropping, only to rise again after the second surgery. The surgeons felt that the acute elevation of alkaline phosphatase and bilirubin was probably due to surgical manipulation of fractures during reduction and to metabolic breakdown products from the transfusion load of red cells. Also, the patient was receiving p.r.n. intramuscularly administered meperidine.

However, in order to exclude the possibility of common bile duct obstruction and gallbladder disease, a scintigraphic study was carried out after intravenous injection of 3.5 mCi of Tc-99m-2, 6-di-isopropyliminodiacetic acid (DISIDA). Images were obtained over a one-hour interval after injection and demonstrated prompt hepatocellular uptake with visualization of the common bile duct and proximal small bowel at 25 minutes (Figure 1A). The gallbladder was not visualized at 60 minutes after injection (Figure 1B). A suggestion of a very faint collection of increased activity was noted on anterior projection between the quadrate and left lobes. After injection of morphine (.04 mg/kg), gamma camera images demonstrated a markedly abnormal focal collection of bile in the same location (Figure 2A). The gallbladder was visualized 90 minutes after the morphine augmentation (Figure 2B).

Because the patient was doing well otherwise and because the serum bilirubin began to fall, she was treated conservatively, with resolution of liver enzyme abnormalities before discharge on the 25th hospital day.

Discussion

This case demonstrates again the usefulness of intravenous opiates in augmenting cholescintigraphy in problematic situations. Here, a young patient, who sustained a liver laceration and multiple fractures from trauma and who had undergone two surgical procedures with significant blood loss and replacement, presented with acute elevation of serum bilirubin, SGOT, and alkaline phosphatase.

Cholescintigraphy quickly ruled out common bile duct obstruction and confirmed the clinical suspicion of a nonobstructive "post surgical" jaundice. Administration of intravenous morphine induced choledochoduodenal sphincter spasm promoting filling of a normal gallbladder. Also unmasked was a bile leak that had been clinically unsuspected. This finding may or may not be related to the abnormal amylase and liver function enzymes but did alert the surgeons to a potential bile peritonitis. Fortunately, the patient responded well to conservative management, and additional surgery was avoided. Furthermore, our case, along with that reported by

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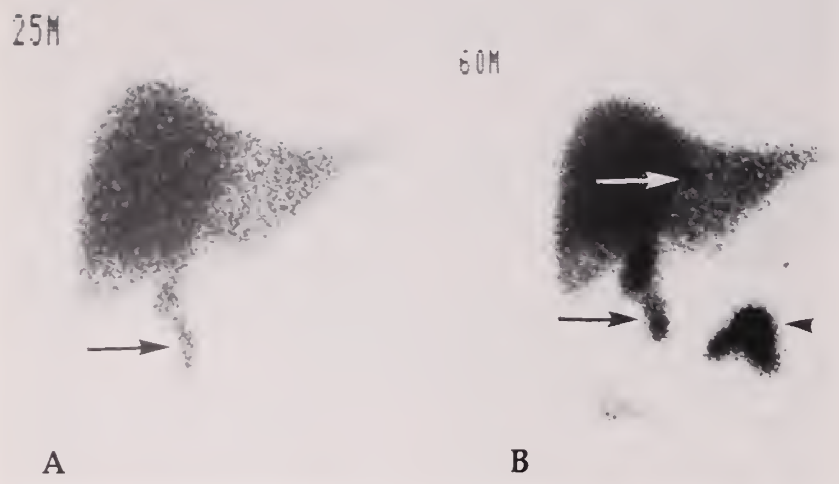

FIGURE 1 (A and B) — Gamma camera images obtained 25 and 60 minutes after injection of Tc-99m DISIDA demonstrate visualization of the common bile duct (black arrow) and proximal small bowel (black arrowhead). The gallbladder is not seen. Note the very faint collection of bile between quadrate and left hepatic lobe at 60 minutes (white arrow).

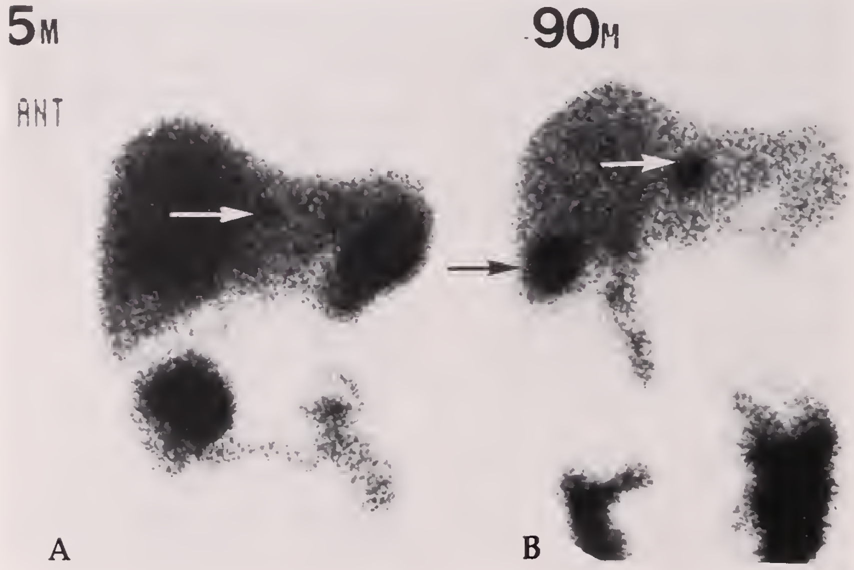

FIGURE 2 (A and B) — Gamma camera images obtained 5 and 90 minutes after the administration of morphine better demonstrate the markedly abnormal focal collection of bile (white arrow). The gallbladder is seen at 90 minutes (black arrow).

Sefczek et al.,[5] suggests that emergency cholescintigraphy with pharmacologic intervention using intravenous morphine in selected cases may aid the surgery team preoperatively by documenting a bile leak from liver injury. We point out that delayed images without narcotic augmentation may suffice to make the diagnosis.[4] However, pharmacologic intervention reduces the time required for definitive diagnosis, expedites management, and ultimately benefits the patient. We experienced no complications from the morphine administration. The opiate effect can be rapidly reversed with Naloxone once the diagnostic scans have been obtained.[6]

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Neurologic Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns
Anticholinergic Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract
Allergic Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus
Hematologic Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia
Gastrointestinal Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue
Endocrine Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion
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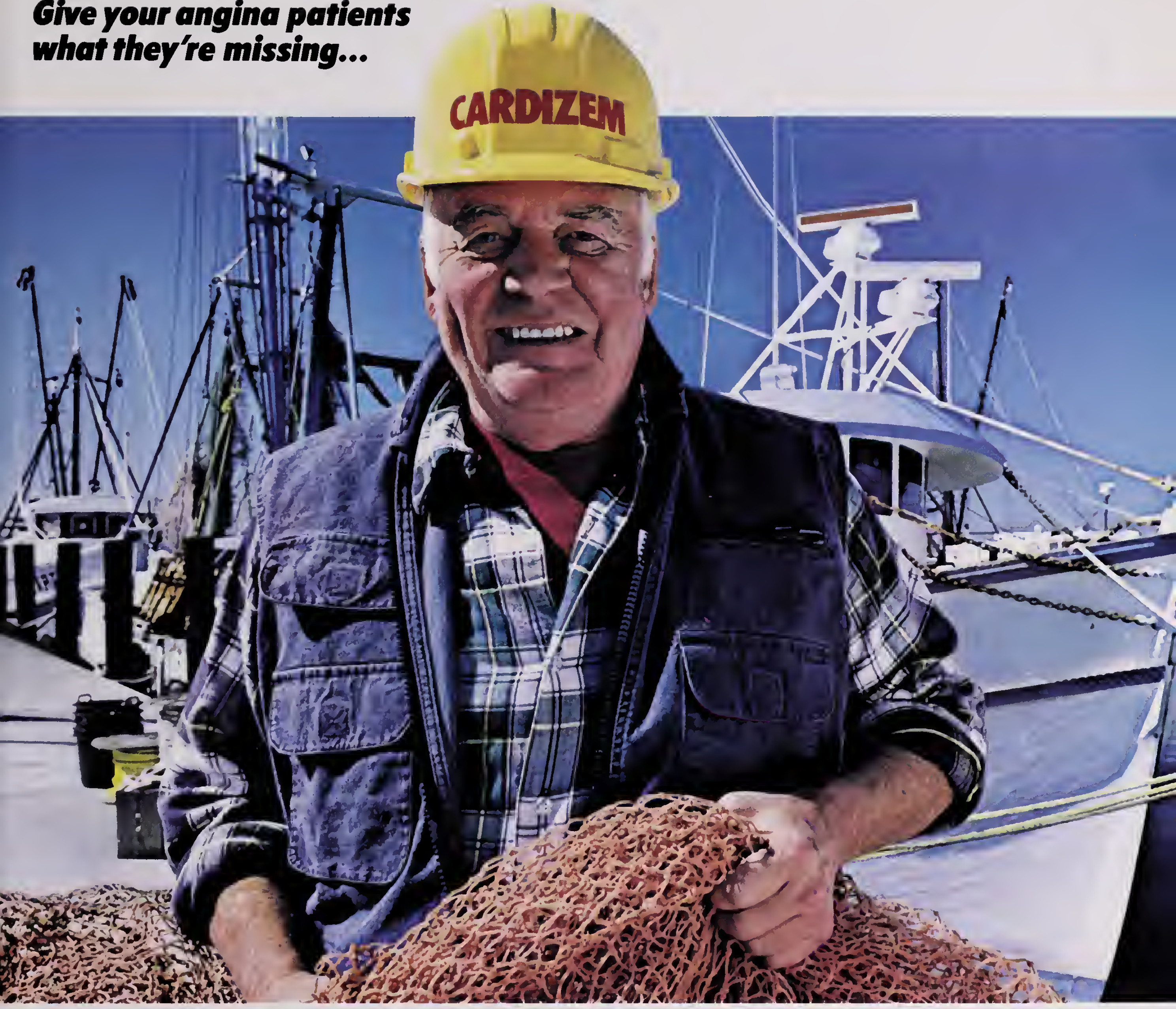

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****See Warnings and Precautions.***

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CARDIZEM® diltiazem HCl/Marion FEW SIDE EFFECTS IN ANTIANGINAL THERAPY

60 mg tid or qid

Brief Summary
Professional Use Information

CARDIZEM®
(diltiazem HCl) 30 mg and 60 mg Tablets

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. ***Cardiac Conduction.*** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. ***Congestive Heart Failure.*** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*
   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. ***Hypotension.*** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. ***Acute Hepatic Injury.*** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic:	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established. *Issued 7/86*

See complete Professional Use Information before prescribing.

References: 1. *Pepine CJ, Feldman RL, Hill JA, et al: Clinical outcome after treatment of rest angina with calcium blockers: Comparative experience during the initial year of therapy with diltiazem, nifedipine, and verapamil. Am Heart J 1983, 106(6):1341-1347.* ***2.*** *Shapiro W: Calcium channel blockers: Actions on the heart and uses in ischemic heart disease. Consultant 1984,24(Dec):150-159.* ***3.*** *Johnston DL, Lesoway R, Humen DP, et al: Clinical and hemodynamic evaluation of propranolol in combination with verapamil, nifedipine and diltiazem in exertional angina pectoris: A placebo-controlled, double-blind, randomized, crossover study. Am J Cardiol 1985,55:680-687.* ***4.*** *Cohn PF, Braunwald E: Chronic ischemic heart disease, in Braunwald E (ed): Heart Disease: A Textbook of Cardiovascular Medicine, ed 2. Philadelphia, WB Saunders Co, 1984, chap 39.* ***5.*** *Schroeder JS: Calcium and beta blockers in ischemic heart disease. When to use which. Mod Med 1982,50(Sept):94-116.*

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Keflet is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-sensitive patients.

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Brief Summary. Consult the package literature for prescribing information.
Indications and Usage: Keflet™ Tablets (cephalexin, Dista) are indicated for the treatment of the following infections when caused by susceptible strains of the designated microorganisms

Respiratory tract infections caused by *Streptococcus pneumoniae* and group A β-hemolytic streptococci (Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever Keflet is generally effective in the eradication of streptococci from the nasopharynx, however, substantial data establishing the efficacy of Keflet in the subsequent prevention of rheumatic fever are not available at present)

Otitis media due to *S pneumoniae* *Haemophilus influenzae*, staphylococci, streptococci, and *Neisseria catarrhalis*

Skin and skin-structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli*, *P mirabilis*, and *Klebsiella* sp

Note—Culture and susceptibility tests should be initiated prior to and during therapy Renal function studies should be performed when indicated.

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN SENSITIVE PATIENTS

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES

There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and the cephalosporins Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously No exception should be made with regard to Keflet

Pseudomembranous colitis has been reported with virtually all broad spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins), therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics Such colitis may range in severity from mild to life-threatening

Treatment with broad spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic associated colitis

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile* Other causes of colitis should be ruled out.

Usage in Pregnancy—Safety of this product for use during pregnancy has not been established

Precautions: *General*—Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended

Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

As a result of administration of Keflet, a false positive reaction for glucose in the urine may occur This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly)

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed

Nursing Mothers— The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose, the drug reached a maximum level of 4 μg/mL, then decreased gradually, and had disappeared 8 hours after administration Caution should be exercised when Keflet is administered to a nursing woman

Adverse Reactions: *Gastrointestinal*—Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely The most frequent side effect has been diarrhea It was very rarely severe enough to warrant cessation of therapy Dyspepsia and abdominal pain have also occurred As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely

Hypersensitivity— Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed These reactions usually subsided upon discontinuation of the drug. Anaphylaxis has also been reported

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported

PV 2211 DPP

[111786]

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rheumatology corner

Felty's syndrome

*Aileen M. Dillon, M.D.**

Felty's syndrome (FS), first described by Felty in 1924, classically consists of rheumatoid arthritis (RA), splenomegaly and leukopenia (WBC $\leq$ 3000/cmm, PMN $\geq$ 2000/cmm), in the absence of other causes of leukopenia or splenomegaly, e.g., drugs or lymphoma.[1-3] It occurs in less than 1% of patients with RA and has a high association with HLA-DR4, which may account for its low frequency in blacks. Patients are typically female, aged 50-70 years with RA for at least ten years, although FS may occur at any time in the disease. Traditionally, patients are thought to have burnt-out, deforming, erosive arthritis but recent studies show that many have mild disease, and, at least 50% still have active arthritis. Patients tend to have a higher frequency of extra-articular manifestations including nodules, Sjogren's syndrome, and vasculitis.

Clinically, FS presents a spectrum from asymptomatic patients with leukopenia and splenomegaly to those with marked morbidity and mortality. Weight loss may be striking and may antedate the diagnosis by several months. Recurrent fevers in the absence of infection, recurrent leg ulcers presumed due to vasculitis, and other manifestations of vasculitis including mononeuritis multiplex, cranial neuropathies, and vasculitic skin rash, are also seen. Less frequently noted are lymphadenopathy and brown pigmentation of the skin.

The most serious sequela of FS is the increased susceptibility to infection. The pathogens are typically common bacteria—staphlococcus, streptococcus, gram-negative bacilli—and involve common sites including the skin and respiratory tract. However, patients may develop septic arthritis or life-threatening septicemia. The degree of granulocytopenia correlates poorly with the number and severity of infections.

Mild hepatomegaly and abnormal liver function tests may occur. Very occasionally, FS patients will develop nodular regenerative hyperplasia—a diffuse nodularity of the hepatic parenchyma which may be associated with portal hypertension and esophageal varices.

Laboratory tests typically show leukopenia with an absolute granulocytopenia. Counts may vary spontaneously, and often patients can mount a response to infection that may return the counts to normal. A moderate anemia is common, but patients may develop a severe hemolytic anemia. Mild to moderate thrombocytopenia occurs in up to 40% of FS patients. Other tests are in keeping with the concept that this is an aggressive form of RA, with marked elevation of erythrocyte sedimentation rate, high titer rheumatoid factor, positive antinuclear antibody (ANA) and, in the majority, granulocyte-specific ANA, hypergammaglobulinemia, cryoglobulinemia, and circulating immune complexes.

The bone marrow classically shows myeloid hyperplasia with "maturation arrest" due to a relative excess of immature forms. However, the marrow may be normal or occasionally show myeloid hypoplasia.

The pathogenic mechanisms of the granulocytopenia and increased susceptibility to infection are poorly understood but are probably multiple. They include cellular and humoral inhibition at the marrow level, and peripheral destruction by anti-granulocyte antibodies and immune complex adherance to the granulocyte cell membrane, which facilitate reticulo-endothelial system removal and splenic sequestration. Patients may also have defective granulocyte function in phagocytosis, chemotaxis, and bacterial killing.

The management of patients with FS is controversial. Some patients with early or chronic asymptomatic disease may not require specific treatment. Spontaneous remission has been reported. However, a variety of therapies have been recommended over the years for patients with significant disease. Splenectomy, although widely used since 1932, is not recommended for the typical patient. Despite an initial postsplenectomy increase in granulocytes, most patients again develop granulocytopenia, often with a normal total leukocyte count.[3,4] Furthermore, severe and often fatal infections have been reported post-splenectomy, despite normal granulocyte counts. Other modalities of therapy including corticosteroids, testosterone, and lithium carbonate have failed to consistently induce sustained remission or have caused significant side effects.[4]

The most promising treatment for patients with symptomatic FS at present appears to be parenteral gold.[5] The English literature describes 88% of 34 patients experiencing a partial or complete response to gold therapy. Three failed to respond and one died of

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*Mayo Clinic and Foundation, Rochester, MN.

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non-drug-related causes. The response to oral gold is promising, but as yet, the number of patients treated is insufficient. Penicillamine, although partially successful, has been associated with significant side effects. There are insufficient data on the use of plasmapheresis and immunosuppressive drugs.

In summary, FS, although uncommon, may be associated with significant morbidity and mortality. At present, the recommended treatment in those with symptomatic disease is parenteral gold, provided there are no other contraindications. Therapy must be closely supervised in view of the potential risks of marrow toxicity.

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Patient injuries and malpractice litigation can be avoided when communication between referring physicians and other medical specialists or hospital service departments is clear and meaningful. The specialist who is asked to consult on a case needs to know what the purpose of the consultation is, and, if the patient is hospitalized, the consultant must rely on the accuracy of the medical chart to assure that diagnostic recommendations and advice for treatment are appropriate.

Improved Communication with Consultants

Unclear or ambiguous communications between referring physicians and other specialists can result in inappropriate follow-up, contraindicated prescriptions, and confusion about which physician should be contacted when problems arise. Contradictory signals from several physicians treating the same patient result in a loss of patient confidence. Following are some recommended guidelines for communications among physicians:

- A clear distinction should be made between a request for a consultation and a request to assume a patient's ongoing care.
- Consultation requests should indicate the degree of urgency.
- Physicians who request consultations for hospitalized patients should promptly review the consultants' progress notes or written reports.
- A telephone report is a temporary communication. The consultant should complete a timely written report. If no report is requested, the referring physician should make a note in the patient's chart of conversations with the consultant. As a rule, consultants protect themselves from liability when they do send a written summary of their examination and recommendations. The report avoids confusion if the patient misunderstands advice or instructions and relays them incorrectly to the referring physician.
- When a referring physician elects to defer the recommendations in a consultant's written note after verbal discussion, the medical chart should document the conference and indicate the reasons the recommendations are not followed.
- When a consultant alters the referring physician's written orders in the hospital or changes medications or therapy for the outpatient, these actions should be mentioned in the consultation note.
- The consultant should indicate what information was available or which parts of an office or hospital chart were reviewed so that the consultant's opinion is appreciated in the proper context. (The results of tests or treatment ordered by the referring physician may not have been completed at the time of the consultant's examination.)
- Consultants' notes in the hospital chart should be dated, timed, and signed.

Communication with Radiologists

The radiologist is a recognized specialist, and consultations with radiologists should be handled in the same manner as contacts with other consultants. A common but risky practice is the failure of referring physicians to provide the radiologist with adequate clinical information. Radiologists who testify in malpractice cases often contend that the omission of pertinent information increases the risk of misinterpreting an X-ray and may result in injuries or the performance of unnecessary procedures.

Communications between referring physicians and radiologists can be improved by observing these reasonable guidelines:

- Provide adequate clinical information on X-ray requisitions and include the reason for the X-rays. Single word orders (e.g., "skull," "chest," etc.) may be inadequate.
- Ask nurses to inform the radiology technician or others who transport your hospitalized patients if special precautions need to be taken. It may be unsafe to leave some patients alone in radiology reception areas.
- Before requesting X-rays for women of childbearing age, check the date of their last menstrual period and note this date on the requisition. If the patient is pregnant but the X-rays are medically indicated, a physician should tell the patient the risks and alternatives to the X-ray.

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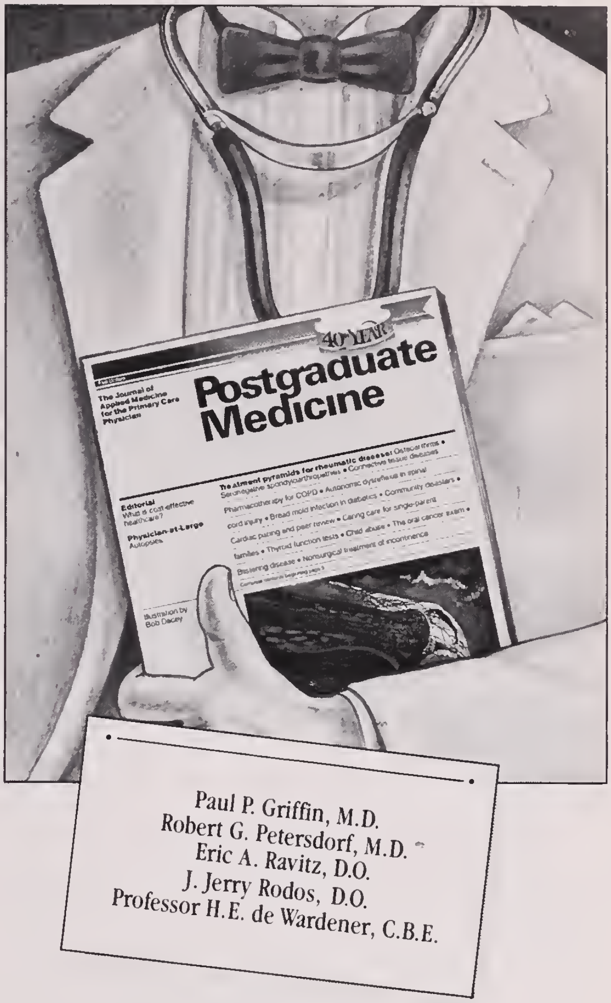
40th YEAR
Postgraduate Medicine
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Robert G. Petersdorf, M.D.
Eric A. Ravitz, D.O.
J. Jerry Rodos, D.O.
Professor H.E. de Wardener, C.B.E.

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Special Article: Orthopedics 1947-1987 . . . Paul P. Griffin, M.D.

August
Symposium: Infectious Diseases
Special Article: Infectious Diseases 1947-1987 . . . Robert G. Petersdorf, M.D.

September 1
Symposium: Focus on Osteopathic Medicine . . . Eric A. Ravitz, D.O. Coordinator
Special Article: Osteopathic Medicine 1947-1987 . . . J. Jerry Rodos, D.O.

September 15
Symposium: Renal Disease
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40th YEAR
Postgraduate Medicine

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CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

JULY 1987

6-10 **Team Management of Diabetes Mellitus** International Diabetes Center, Park Nicollet Medical Foundation, Minneapolis, Minnesota. CONTACT: Judy Ostrom Joynes, R.N., M.A., International Diabetes Center, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3393.

8-11 **Orthopaedic Surgery: Knee CME,** University of Minnesota Medical School; Minneapolis Marriott, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10 **Symposium on Clinical Neurology** University of Minnesota-Duluth School of Medicine; UMD School of Medicine, 10 University Drive, Duluth, Minnesota. CONTACT: Office of CME, UMD School of Medicine, 10 University Drive, Duluth, Minnesota 55812; (218) 726-7916.

15 Emergency Medicine CME, Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, MN 55746; (218) 262-4881, Ext. 259.

15-19 **Myocardial Infarction: The First Months** Abbott Northwestern Hospital; Grand View Lodge on Gull Lake, Brainerd, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

JULY 30-AUG 1 **Fourth Annual St. Paul-Ramsey Trauma Conference** St. Paul-Ramsey Medical Center; Fox Hills Resort, Mishicot, Wisconsin. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

AUGUST 1987

18 Urology CME, Mesabi Regional Medical Center, Hibbing; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-25 **Queen Elizabeth 2 and London — Travel Medical Seminar Program** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

AUG 22-SEPT 3 **Midnight Sun Express and Alaska Passage — Travel Medical Seminar Program** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

28-29 Medical Directors CME, University of Minnesota Medical School; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

SEPTEMBER 1987

10-11 **Hospital Nutrition Support CME,** University of Minnesota Medical School; Holiday Inn Downtown, 1313 Nicollet Avenue, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-11 **Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies** Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, 2525 Chicago Avenue South, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, Medical Education Coordinator, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

10-12 **Teaching Geriatric Medicine CME,** University of Minnesota Medical School; Radisson University Hotel, 615 Washington Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-25 **Passage to India and Nepal** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

14-25 **Fifth Annual Occupational Health and Safety Institute** Midwest Center for Occupational Health and Safety; Earle Brown Center, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

16 **Ear, Nose & Throat** — CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-18 OB/GYN Annual Autumn Seminar CME, University of Minnesota Medical School; Hyatt Regency Hotel, 1300 Nicollet Mall, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-19 Tenth Annual Trauma and Critical Care Seminar Hennepin County Medical Center; HCMC, 701 Park Avenue South, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 347-2075.

18 Northwestern Pediatric Society's 75th Anniversary Scientific Meeting Northwestern Pediatric Society; Thunderbird Motel and Convention Center, Bloomington, Minnesota. CONTACT: M. Nammacher, M.D., 6845 Lee Avenue North, Brooklyn Center, Minnesota 55429; (612) 569-0300.

18-19 Adolescent Medicine CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

21-25 Radiology 1987: Chest-Cardiovascular CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

24 Advanced Cardiac Life Support Certification Course Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

Sept. 28-Oct. 1 Colon and Rectal Surgery CME, University of Minnesota Medical School; Mayo Memorial Auditorium, 420 Delaware Street SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

OCTOBER 1987

1-3 Heart Assist Devices and Heart Replacement Abbott Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

4-16 Orient Adventure North Central Medical Conference; The Orient. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

7-9 Internal Medicine Review CME, University of Minnesota Medical School; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

9-10 Third Annual Knapp Rehabilitation Center Conference on Head Trauma Rehabilitation Metropolitan Medical Center and Hennepin County Medical Center; Pillsbury Auditorium, Minneapolis, Minnesota. CONTACT: Colleen Sackrider, Knapp Rehabilitation, 900 South 8th Street, Minneapolis, Minnesota 55404; (612) 347-3950.

12-16 Aspiration Cytology CME, University of Minnesota Medical School, Minneapolis, Minnesota; Bell Institute of Pathology, 2-116 Moos T, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

12-26 The Danube River Cruise North Central Medical Conference; Vienna to Instanbul. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

20 General Surgery-CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (612) 262-4881.

22-24 National Behavioral Pediatrics Conference CME, University of Minnesota Medical School; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

23 Front Line Neurology Abbott Northwestern Hospital; Marriott City Center, Minneapolis, Minnesota. CONTACT: Tim Schuh, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

NOVEMBER 1987

6 E.T. Bell Pathology Symposium CME, University of Minnesota Medical School; Holiday Inn Crowne Plaza, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

6-7 Nutrition in the 80s CME, University of Minnesota Medical School; Earle Brown Continuing Education Center, St. Paul Campus, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

14 Minnesota Society of Anesthesiologists Fall Scientific Program Minnesota Society of Anesthesiologists; L'Hotel Sofitel, Bloomington, Minnesota. CONTACT: Doug Koentop, M.D., University of Minnesota, Anesthesiology Department, Minneapolis, Minnesota 55455; (612) 624-6997.

DECEMBER 1987

15 Pediatrics — CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

classified advertisements

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Medical Writer: Experienced freelance medical writer available to ghostwrite, edit or consult on journal submissions, grants, clinical summaries, research results, and internal newsletters. Reasonable fees. Therese Ensley, 3501 14th Avenue South #5, Minneapolis, Minnesota 55407-2231; (612) 722-0882. (R)

Internist needed to join well-established practice in a community of 45,000. First-year salary guarantee with excellent fringe benefits. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. (R)

Family Practice, Aitkin, Minnesota: Family practice group of five young physicians seeking a sixth FP. Well-established and busy practice located in the beautiful lake region of North Central Minnesota. Guaranteed salary and benefits plus incentive plan. Call: Dennis Weslander, M.D., or Charles Schotzko, M.D. (218) 927-2157, Ripple River Medical Center, 25 4th Street SW, Aitkin, Minnesota 56431. 1-7/87

Family Practice, St. Cloud, Minnesota: The St. Cloud Medical Group, a multispecialty group made up of 23 physicians is seeking an additional full-time, board eligible and/or board certified family practitioner to join its department of ten other family physicians. The St. Cloud Medical Group is a young group of physicians that offers a family practitioner a quality opportunity in the way of call schedules and financial rewards. The facility is a very progressive and growing medical force in Central Minnesota and will offer the new family practitioner and his or her family a quality opportunity in one of the fastest growing communities in the stte of Minnesota. The facility also has two affiliate branches in Clearwater and Cold Spring, Minnesota. St. Cloud, with a population of over 70,000, is home to three major colleges and offers many cultural and educational opportunities to the physician and his or her family members. The St. Cloud community is recognized for its fine public and parochial school systems along with its family-oriented community activities. If interested in joining a progressive and growing medical group in Central Minnesota, please contact and/or call collect: LaRue V. Dahlquist, M.D., President, and/or Daryl G. Mathews, Administrator, at (612) 251-8181, or send your CV to the St. Cloud Medical Group, PA, 1301 West St. Germain, St. Cloud, Minnesota 56301. 4-10/87

Family Physician wanted to join four others in rapidly expanding North Ridge Family Medicine Clinic. New clinic facility in North Mankato. Mankato population 40,000+, opportunity for partnership after one year. Call or write: Tony Giefer, M.D., 1695 LorRay Drive, North Mankato, Minnesota 56001; (507) 387-8231. (R)

Burns Clinic Medical Center, PC, is seeking Board Certified/Board Eligible physicians in: Family Practice, Emergency Medicine, Orthopedic Surgery, Otolaryngology, Neurolgoy, Neurosurgery, Neonatology, and Anesthesiology—leading to partnership in this 90-physician (fee-for-service) multispecialty group. Located in beautiful four seasons northwestern Michigan in Petoskey. Excellent salary and benefits. Please send CV to: Robert A. Mengebier, M.D., Medical Director, Burns Clinic Medical Center, PC, 560 West Mitchell, Petoskey, Michigan 49770; or call (616) 348-2362. *1-7/87

Physician Retiring: Successful Omaha physician with growing primary care and general surgery practice is preparing to retire. Future direction of the practice will depend on interests of new physician(s) who acquire ownership. Our client will remain in practice for one to three years on full-time or part-time basis to assist with transition of existing patients to new physician(s) and to arrange introductions to hospital personnel, referring physicians. Sale terms are very flexible. If interested send CV with letter describing your interests. Include after-hours telephone number. Direct inquiries to: Edmund J. Leslie, Leslie Associates, 200 Kiewit Plaza, 3555 Farnum, Omaha, Nebraska 68131. *1-7/87

General Surgeon to join a busy, multispecialty group practice in suburban Minneapolis. The group currently has 40 physicians and the successful candidate will join one additional general surgeon in a very busy practice. For more information, please contact: Bradford B. McKane, Comprehensive Medical Care, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433; or telephone (612) 780-7032. 1-7/87

Internist: excellent opportunity to join busy, growing practice close to the Minneapolis-St. Paul area. This successful satellite of Ramsey Clinic, a University-affiliated multispecialty group in St. Paul, Minnesota, combines a unique rural practice setting adjacent to an excellent community hospital with multiple teaching opportunities. Easy access to excellent major city, cultural opportunities, and outdoors activities. Attractive salary and benefits package. Send CV to: David J. Mersy, M.D., Satellite Medical Director, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101. Equal Opportunity Employer. 1-7/87

Bemidji, Minnesota: Immediate opportunity for an additional Board Certified/Eligible orthopedic surgeon to join young 26-physician multispecialty group practice located in Northern Minnesota. Clinic adjacent to modern, well-staffed and equipped hospital. Competitive salary guarantee plus incentive first year. Excellent benefits and educational leave. An excellent opportunity for a physician to enjoy the practice of orthopedics in the center of hunting, fishing, and clean air. Please respond with CV to: Thomas E. Miller, M.D., or C.C. Lowery, Administrator, Bemidji Clinic, Ltd., 1233 34th Street NW, Bemidji, Minnesota 56601. (R)

Physician Needed to provide primary care. Position is with a 637-bed regional treatment center that provides treatment for individuals with chemical dependency problems/psychiatric and developmental disabilities. Competitive salary with excellent fringes including paid malpractice insurance. Limited call. Located 90 miles west of Minneapolis/St. Paul with abundant outdoor recreational opportunities. Excellent schools. Salary to 65K. Call or write (include CV and references): Larry Olson, M.D., Medical Director, Willmar Regional Treatment Center, Willmar, Minnesota 56201; (612) 231-5100. An Equal Opportunity Employer. 2-8/87

Galesville, Wisconsin — Family Practice: Immediate family practice opportunity available in rural community—population 1,300 with a service area of about 8,000. Newly remodelled and fully equipped branch office is part of a 51-physician multispecialty group with 16 family physicians. Diverse subspecialty backup and on-call coverage are provided. 23 miles from 350-bed, full-service hospital in La Crosse. Clinic offers competitive compensation package, including first-year guarantee and excellent benefits. Galesville is nestled amidst the picturesque bluffs of southwestern Wisconsin. Year-round recreational resources nearby. Contact P.S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 South 10th Street, La Crosse, Wisconsin 54601. Phone (608) 782-9760. 2-8/87

Family Practice Physician needed to join six Board Certified family practice physicians. Located in the northern suburbs of Minneapolis and St. Paul. Please contact: Marilyn Reilly (612) 788-9661. 1-7/87

La Crosse, Wisconsin — Immediate need for BE/BC general pediatrician. 51-physician multispecialty group, three pediatricians. 350-bed hospital adjacent to clinic. Competitive first-year compensation, excellent benefits. City of 50,000 in beautiful Mississippi River Valley. Contact P.S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 South 10th Street, La Crosse, Wisconsin 54601. Phone (608) 782-9760. 3-9/87

Neonatologist — Member of 28-physician multispecialty group in North Dakota. 250-bed hospital with fully equipped Level III unit. Excellent salary plus bonus. Contact: Jean Malkasian, 250 Regency Court, Waukesha, Wisconsin 53186; or call (414) 785-6500 collect. 2-8/87

Family Practitioner Wanted to join a 40-physician multispecialty group in northern suburbs in Minneapolis. The appropriate candidate will join the current Family Practice Department of 20 physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or telephone (612) 780-7032. 1-7/87

General Surgeon Wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Surgery Department of one physician in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or telephone (612) 780-7032. 1-7/87

Family Practice Physician Wanted: Health, Etc., a community clinic in south Minneapolis seeks a board eligible or certified family practice physician. Clinic serves a low-income community with care provided on a sliding-fee scale. Limited prenatal and deliveries; call system with other providers. Diverse population. Competitive salary. Contact: Ellen Wuertz, Health Etc., 1518 East Lake Street, Minneapolis, Minnesota 44407; (612) 721-5771. 1-7/87

Quality Lake Home in central Minnesota. Only 2-hour drive from Minneapolis. Custom walkout rambler on 1 1/3 acres with over 3000 sq. ft. of finished living area. 5 bdrms, 3 baths, custom oak woodwork throughout. Dual heating system with off-peak electric and groundwater heat exchanger for heat and central air conditioning. Two decks overlooking 130 ft. of lakeshore. Good fishing and other water sports. Double attached garage plus separate 20'x30'x12' insulated and heated garage with attached horse stable for two horses. Beautiful tranquil country setting. $170,000. Call (612) 573-2517. 3-9/87

Clinic Manager Seeking Position with progressive growth-oriented physician group. Ten years' experience including: clinic management, hospital, and consulting. Expert in computer systems, personnel management, benefits plans, hospital relations, and health plan negotiations. Looking for new challenges. For detailed resume and salary history please send a description of your group to: Minnesota Medicine (812), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Urologist— VA Medical Center, Lincoln, Nebraska. Seeking board certified or board eligible urologist for progressive, affiliated 180-bed medical center. Center is affiliated with University of Nebraska for urology residency program. Salary and bonus pay commensurate with training and experience. Licensure any state. Must meet English proficiency requirement. Allowable moving expenses payable. Write or call: (402) 489-3802, Ext. 229. Chief, Surgical Service, VA Medical Center, 600 South 70th Street, Lincoln, Nebraska 68510. Equal Opportunity Employer. *3-9/87

Internist and Family Physician: Fourteen-physician, multispecialty clinic located 100 miles south of Minneapolis-St. Paul is seeking an internal medicine and a family practice physician. Excellent practice opportunities in a community of 25,000. Modern, well-equipped clinic with on-site lab and diagnostic X-ray. Attractive guaranteed salary, excellent benefits and early partnership. Contact: Richard Graber, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. 3-9/87

Certified Audiologist: Aspen Medical Group, a large multispecialty medical group located throughout the Twin Cities, currently has an opening for a certified audiologist. The person will assist our two otolaryngologists located in Bloomington and Bandana Square in St. Paul. The individual we select to work on a contract basis will be certified and will embelish our commitment to provide personal medical care. The position will initially be 8 hours per week and will be flexible based on schedules. Qualified candidates should send resume to: Director of Human Resources, ASPEN MEDICAL GROUP, 1295 Bandana Boulevard North, Suite 3310, St. Paul, Minnesota 55108. 2-8/87

Arizona-Based Physician Recruitment firm has quality opportunities coast-to-coast. Available positions in most primary care and surgical specialties to include Ob/Gyn, Orthopedics, ER, and ENT. "Quality Physicians for Quality Clients since 1972." Call (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

Family Practice and Internal Medicine: Huron Clinic Foundation, Limited is a multispecialty group serving a trade area of approximately 50,000, has a practice situation where several members of the staff are near retirement and a ready practice would be available. A new member can start with NO CASH Investment, first-year salary guarantee, and many benefits, including malpractice insurance and a pension plan. The clinic is located next to a 120-bed JCAH-accredited regional hospital with excellent diagnostic and care capabilities. The clinic is currently pressed for a Board Certified/Board Eligible physician to take over a practice. Call collect (605) 352-8691 or contact any staff member or the clinic manager at the Huron Clinic, PO Box 822, Huron, South Dakota 57350. *6-10/87

Mork Clinic, a multispecialty group in Anoka, is looking for a family practitioner to join our staff. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 6-10/87

Family Practitioner to join a multispecialty group comprised of family practitioners, internists, general surgeons, and a pediatrician. Located 75 miles north of Duluth, the area offers a wide variety of outdoor sporting activities. The medical community service area is 30,000. The school system is excellent. Modern 6-year-old hospital. Competitive first-year salary and comprehensive benefit package. Contact: Bayard T. French, M.D., Adams Clinic, PA, 2229 East 3 Avenue, Hibbing, Minnesota 55746; (218) 262-3425. 3-7/87

St. Paul Internists, PA Has openings for a pulmonary intensivist and invasive cardiologist, immediately, June 1987, and June 1988. Please contact: Frank J. Indihar, M.D., FACP (612) 224-4737. (R)

Two Board Certified Family Practitioners Needed for affiliate clinic of Willmar Medical Center. Excellent fringe benefits. Send CV to: Norris M. Anderson, M.D., 101 Willmar Avenue SW, Willmar, Minnesota 56201-3591. 3-7/87

180-Member Multispecialty Group Practice has immediate openings for Board Certified/Board Eligible family practice physicians. Various practice locations are available throughout a regional service area in eastern North Dakota and northwestern Minnesota. Family Practice Department is currently largest department within the multispecialty group. Send CV and references to: John Weir, Associate Administrator, Dakota Clinic, Ltd., PO Box 6001, Fargo, North Dakota 58108. 3-7/87

Family Practitioners: The Monroe Clinic, located 40 miles south of Madison, has openings in New Glarus and Brodhead, Wisconsin, satellites and a new clinic in northern Illinois. Excellent benefits. Partnership available. Resources of 55-physician multispecialty group. Contact: Robert H. Rieder, Administrator, The Monroe Clinic, 1515 Tenth Street, Monroe, Wisconsin 53566; (608) 328-7381. 3-7/87

Orthopaedic Surgeon: Well-established solo Board Certified orthopaedic surgeon is looking for another BC/BE surgeon who wants to live in a smaller community and practice quality general orthopaedics. The Northern Pines Orthopaedic Clinic is a newly remodeled, 4000 sq. ft. facility with in-house X-ray and PT. Office located one mile from well-equipped JCAH-approved 100-bed hospital. Practice serves county of 40,000 and parts of three adjacent counties. Grand Rapids is located in the heart of Minnesota's four-season vacationland, offering nearby lakes, excellent boating, fishing, and hunting, two ski resorts, three golf courses, large YMCA, and more. The community has a solid industrial base and one of the better school systems in the state. If interested in an exceptional practice opportunity in a family-oriented community, send CV to: J.W. Burnett, M.D., Northern Pines Orthopaedic Clinic, 111 Golf Course Road, Grand Rapids, Minnesota 55744.(R)

Family Practice: Six-person family practice group in Mora, Minnesota, seeks associate. Located 65 miles north of the Twin Cities in the heart of fishing and hunting country, the practice offers an excellent opportunity for professional and personal growth with expanding practice, comprehensive salary and benefit package. Contact: Larry Brettingen, M.D., Mora Medical Center, Ltd., 224 — 7th Street, Mora, Minnesota 55051, or call (612) 679-1340. 3-7/87

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 6-9/87

Family Practice: to join group of 10 board-certified family physicians. Three offices located in northwest suburbs of Minneapolis. Guaranteed first-year salary plus excellent benefits. Contact: Diane Shuck, M.D., (612) 476-6776 or 537-8405; Marie Hanauska, 537-8475; or write 5810 42nd Avenue, Robbinsdale, Minnesota 55411. 6-9/87

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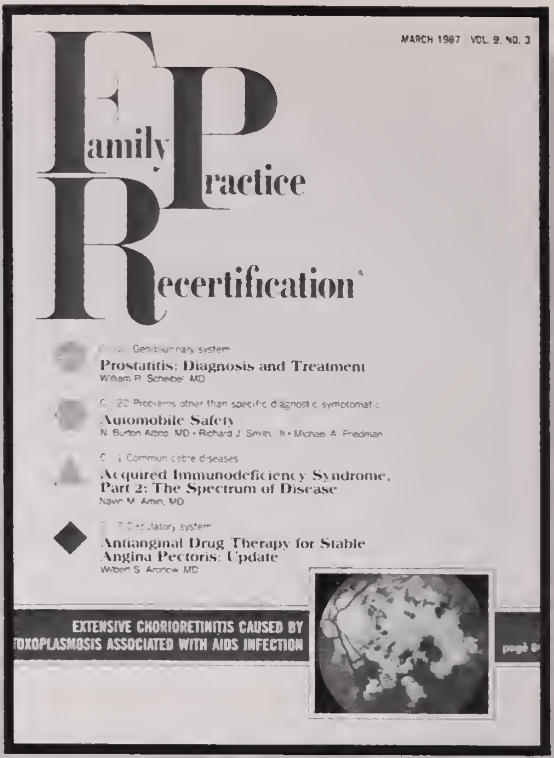

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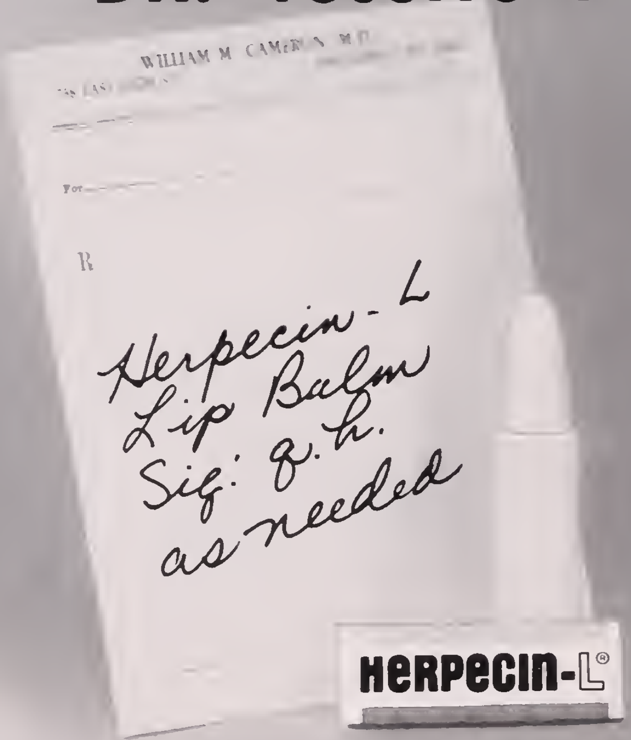

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Physicians Needed: Opportunities nationwide!! Call (612) 633-4990 or send CV to: Earl Czech, North Central Staff Services, Inc., 443 — 8th Street NW, St. Paul, Minnesota 55112. 1-7/87

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Orthopedic Surgeon: BC/BE to join me in my solo private practice of orthopedic surgery in Virginia and Hibbing, Minnesota. First-year salary would be competitive with incentive benefits and early partnership. Contact: Jay A. Davenport, M.D., Orthopedic Ltd., Northland Office Center, PO Box 943, 307 1st Street South, Virginia, Minnesota 55792 and talk to Dr. Davenport or Ron Egge for further details; (218) 749-2004. 2-7/87

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Family Practitioner: Marshfield Clinic — Durand Center is seeking a board certified/board eligible family practitioner to join another family practitioner in an established office-based practice in Durand, Wisconsin. Durand offers a rural location with abundant outdoor recreational opportunities located in scenic western Wisconsin. The Durand Center offers the family practitioner the autonomy of a private, primary care practice plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges at the local hospital in Durand. Excellent salary and fringe benefits. Please send CV to: Robert Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449. Or you may call collect at (715) 387-5498. *3-8/87

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Urgi-Care Physician: The St. Cloud Medical Group, a multispecialty physician group, is recruiting an Urgi-Care physician in St. Cloud, Minnesota. The physiician must be board certified and/or eligible in family practice and/or emergency medicine. The individual recruited into this position will not be required to take any evening or weekend call and will receive the benefits of association with one of the largest groups in central Minnesota. St. Cloud, with a population of 70,000 is one of the fastest growing communities in central Minnesota, and is home to three major colleges. St. Cloud's location provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in becoming an Urgi-Care physician in a progressive and growing medical group in St. Cloud, Minnesota, please contact either Dr. LaRue Dahlquist, President, or Daryl G. Mathews, Administrator, collect at (612) 251-8181, and/or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-9/87

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president's letter

Competition (Or Should Health Care Become a Commodity?)

"Competition between and among physicians and other health care practitioners on the basis of competitive factors such as quality of services, skill, experience, miscellaneous conveniences offered to patients, credit terms, fees charged, etc., is not only ethical but is encouraged. Ethical medical practice thrives best under free market conditions when prospective patients have adequate information and opportunity to choose freely between and among competing physicians and alternate systems of medical care."

This optimistic view of competition is included in the 1986 Current Opinions of the Council on Ethical and Judicial Affairs of the American Medical Association. Unfortunately, in 1987, many of the competitive factors cited in this opinion are not available to physicians and many patients are not able to choose freely among competing physicians. Because of several developments in our health care delivery system, the doctor-patient relationship may now be more threatened than ever in our past. The decisions of both the patient and the physician are often restricted. Payment systems or employers contractually limit the freedom of patients to select their physician or their hospital. Payment systems, the government, employers, and other entities now place limitations on the actions of physicians. In short, all four parties are making decisions today that formerly were made by only two of the parties — patients and their physicians.

The power of the third and fourth parties to contract for care is replacing patients' power to contract for their own care, a departure from past systems. That is, there has been a fundamental change in the system from professional competition among providers to commercial competition among insurance carriers, health plans, and the providers, which raises very serious questions about the quality of care and physician autonomy. I believe physicians fear a reduction in status from being members of a revered profession to being the mere purveyors of a commodity — health care — for profit. Physicians who are most astute in the business world would probably stand to earn larger profits, and those most concerned with quality, access, affordability, and other patient care issues would earn less. The role of the MMA would become clouded with questions of commerce, and the advocacy of quality patient care would lose out to the quest for profits.

L. Ashley Whitesell, M.D.

I contend that patient advocacy is the greatest challenge for physicians and our association at this time. The tremendous pressures generated by the restructuring of health care finance and delivery systems make the role of physicians all the more critical. The shrinking health care dollar makes one's own pecuniary interests all the more important as well. But the cutthroat competition among the various commercial venders serves to establish the primary role for the physician to be that of the patient's advocate. No other participant in the system has the required knowledge, interest, and compassion to advocate for the patient. We, the physicians of Minnesota, must continue to insist upon high quality care that is both accessible and affordable, and we must resist the commercial temptations to offer medical care merely as a commodity.

In conclusion, the MMA resolution adopted by the MMA House on collective bargaining and now under consideration by the AMA Board of Trustees may prove to be the vehicle that will restore our ability to advocate first and foremost for the patient.

A suggestion: read the Report of the MMA Ad Hoc Committee on Competition which was submitted to the House in May. The report offers a very thorough and thoughtful analysis complete with historical background and the text of much of the testimony given to the committee.

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perspectives

The ethics of fiscal responsibility in a medical setting

Sheldon T. Berkowitz, M.D.

Dr. Berkowitz is a pediatrician with Aspen Medical Group (East Lake Street Medical Center) and chairs the group's ethics committee. He is also a member of the Ethical Issues Committee at Minneapolis Children's Medical Center.

Health care providers increasingly are forced to deal with various economic aspects of medicine that in the past they were able to avoid. Such difficult issues as the role of the physician as a financial gatekeeper for a Health Maintenance Organization (HMO), allocation of resources, and the conflict that health care providers face between their duty to a patient and their responsibility to a group and/or HMO are but a few examples. The following case vignette is an example of problems that could be (and possibly are) occurring at this time.

■■■ Dr. M is an internist with subspecialty training in hematology who is on staff with The Medical Plan (TMP), a group-model HMO. Her patients are primarily those that belong to the HMO, but because she is a well-known hematologist in the community, she also sees fee-for-service patients on a consultative basis, with a portion of her fee going to TMP, and the remainder to her.

For over one year, Dr. M has been seeing Mr. S on a consultative basis for a rare and complicated hematologic disorder. Mr. S does not belong to TMP, but instead has an indemnity policy with another insurance company in which he is responsible for a percentage of his medical costs.

Recently, Mr. S informed Dr. M that he has been so happy with his care with Dr. M that he is thinking of changing his insurance coverage to TMP when his employer has its next open enrollment period. He would then be able to go to Dr. M for all of his health care needs. Dr. M is not sure how to respond to Mr. S. She realizes that while it may be advantageous for Mr. S to have his health care centralized with a single provider (as well as less expensive for Mr. S to pay only his TMP premium), it may be disadvantageous for TMP to have Mr. S as a member. Because of Mr. S's illness, his health care has been very expensive, and Dr. M is aware that Mr. S may need a bone marrow transplant and future hospitalization that will only lead to greater medical expenses. If Mr. S joins TMP, the plan will be financially responsible for his health care, and since Dr. M's salary depends on the solvency of TMP, she is not sure what to do.

While seeing Mr. S as a consultant, Dr. M brings income to her group through Mr. S's fee payments at no financial risk to TMP. However, if Mr. S joins TMP, he would pay only his premium, while TMP would accept all the risk. Does Dr. M have a responsibility to Mr. S to inform him that his own out-of-pocket costs would potentially decrease if he joined TMP? Does Dr. M have a responsibility to TMP to discourage Mr. S from joining TMP if his health care would not suffer? ■■■

This case creates a non-medical but difficult dilemma for the physician in today's climate of increasing financial accountability. Everyone would agree that the primary role of the health care provider is to help patients maintain their physical and mental well-being. Is it also a responsibility of the provider to be concerned about the patient's financial well-being? Likewise, is it the provider's responsibility to look after the financial viability of the organization that he or she belongs to and is paid a salary by — be it a medical group, hospital, insurance company, HMO, or government? The answer to this last question may be a de facto yes, because if the organization that pays a provider ceases to exist, the provider's own ability to practice medicine may be curtailed.

Using Ethical Precepts as a Guide

While there is no single right or wrong answer to these questions, certain ethical theories and principles may offer a guide in arriving at a way to proceed with this case and its attendant problems.

According to deontologic theory, an action is right or wrong by the nature of the act, not the result that is produced (e.g., stealing is always wrong, regardless of the motive). Thus, it would be the obligation of Dr. M to tell Mr. S of the potential benefit of joining TMP (or at the least, answer any of Mr. S's questions truthfully), regardless of Mr. S's ultimate decision.

Utilitarian theory holds that an act is morally justified if the consequences are good, even though the act itself may be questionable. In this case, if it would not harm the patient's health either way, but could be financially devastating (due to the risk) for TMP, then Dr. M could elect to withhold the information regarding potential financial cost savings from Mr. S.

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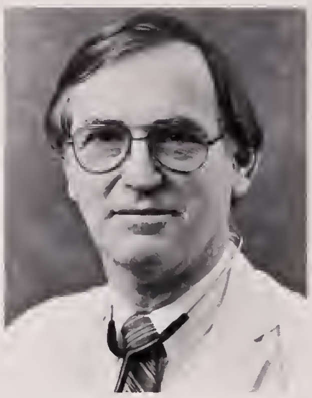

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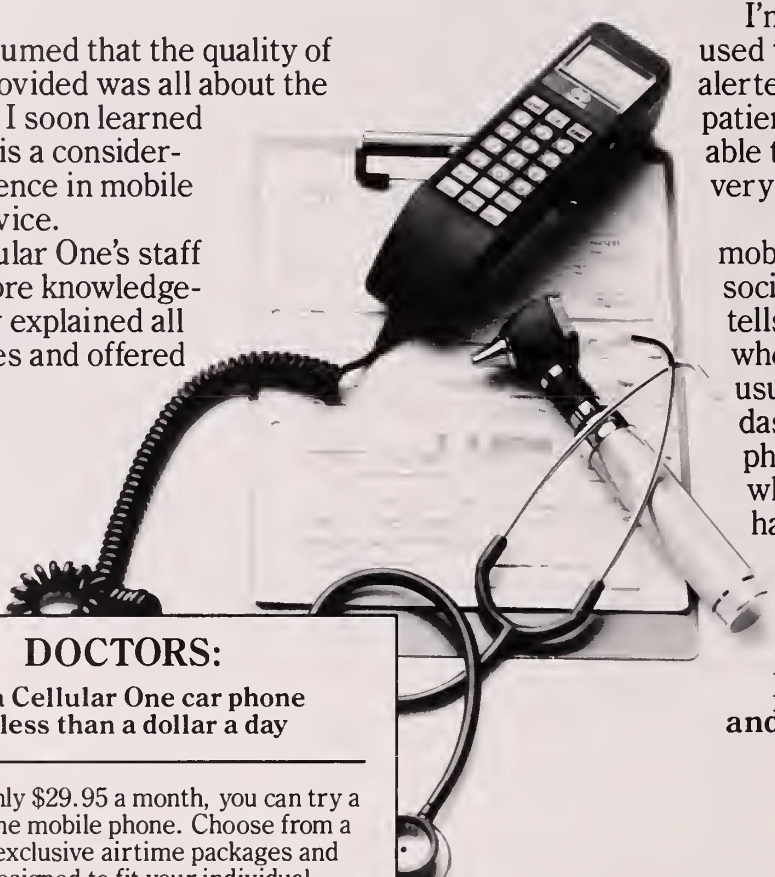

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four main principles of ethics are also helpful in thinking about this dilemma. One of the primary principles in our society is autonomy — the right of an individual to make a decision by him- or herself. To do so, an individual needs to have access to all information relevant to making that decision. Thus, the patient should be told of all the potential risks and benefits. In this case, Mr. S should be told of the potential financial benefits of joining TMP, and some would add, the potential negative impact on TMP.

Beneficence is the concept of promoting good for a patient, while non-maleficence is doing no harm. In this case, beneficence would require telling the patient of the potential benefits — both medical and non-medical —of joining TMP. For instance, Mr. S might benefit by joining TMP and using Dr. M as his primary care physician as well as his hematologist.

The principle of non-maleficence would be applied by stating that you could only withhold information from the patient (such as the potential financial benefits of joining TMP), if doing so would not harm the patient. Obviously, whether this only pertains to physical harm to the patient, or also to financial harm (e.g., increased out-of-pocket expenses) is debatable. In addition, from the viewpoint of TMP, by discussing the potential benefits to the patient and possibly encouraging him to join, Dr. M may be doing harm to TMP.

Finally, there is the issue of justice — or how to treat everyone equitably. This may be one of the most important principles in making a decision in the present case. If there is potential benefit and/or harm to both the patient and TMP, which benefits or harms should take precedence in deciding what to do? Does the potential financial savings to the patient override the potential fiscal harm to TMP by Mr. S's future medical costs? Is TMP's ultimate viability more important to the long-term provision of care by Dr. M to Mr. S and therefore, more beneficial to his health? Should Mr. S's own ability or inability to pay out-of-pocket expenses affect the decision? How one views these benefits and risks will determine which approach to favor.

Choosing an Approach

After considering the above principles and theories, one is still left with the task of how to approach this case in an informed, ethical manner. Two final problems need to be addressed. First, whose viewpoint should one adopt to approach the problem: that of the patient, or TMP? The answer to this question will then guide your response to the second question, which is how to prioritize the above theories and principles.

Making a Decision

Although an administrator may take a different approach to this problem than a health care provider, it is imperative that the provider prioritize the patient's best interests first and TMP's second. Although one cannot ignore the fiscal responsibility that a provider has to an insurance provider and/or medical group, these responsibilities should be of secondary importance. Thus, in this case, a utilitarian approach (since there is no single answer to the problem) emphasizing the principle of autonomy would be the best solution to the problem. Dr. M should talk with the patient about the possible benefits (and potential risks, e.g., disruption of established doctor-patient relationship with Mr. S's existing primary physician) of changing to TMP, and ultimately, let the patient make his own informed decision. Although it is not the role of the physician to either encourage or discourage a patient from joining a particular plan or HMO, at the same time, patients should be provided with the necessary data to be able to make an informed decision.

We can expect cases such as these to be more and more common in the future. Often they may originate, not from the patient, but rather from an administrator of a health plan or insurance company. In such a situation, the health care provider may be asked to give his or her assessment of the potential risk of a patient. In this case, a different perspective may be possible, because a doctor-patient relationship may not yet be established, and it may be permissible to place the benefits and/or risks to the insurance plan first. Ideally, by thinking of the ethical theories and principles outlined above, the final decision in cases like these will not be an instinctual one arrived at in haste, but rather, a well thought out, ethically appropriate one. ■

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AMA Guidelines: Counseling of HIV-seropositive transfusion recipients

The Center for Disease Control has advised individuals who received blood products or transfusions between 1978 and late spring of 1985, as well as their sex partners, to seek the counsel of their physicians regarding the advisability of HIV antibody testing. Because of the potential enormous number of persons (30 to 60 million) who may seek medical counseling, the limited availability and cost of testing, and the potential significant psychosocial impact of a positive test result, the American Medical Association has provided these preliminary guidelines for counseling.

How Should You Determine a Patient's Risk of HIV Exposure?

For most patients seeking advice, the risk of exposure to HIV from a single transfusion is extremely small, less than 1 in 10,000. The risk increases with multiple blood transfusions, receipt of blood collected from donors living in an area with a high incidence of AIDS (New York/Northern New Jersey, Los Angeles, San Francisco, Miami, and Houston), and the presence of clinical or laboratory indications of immune deficiency. Hemophiliacs and others who have received a large number of blood products over extended periods are at the highest risk of HIV seropositivity. A detailed history of potential blood exposures, review of symptoms possibly related to immune suppression (e.g., severe weight loss or diarrhea, unexplained fever or lymphadenopathy, extreme fatigue, confusion), and a physical examination will allow you to assess the risk of exposure.

Who Should be Advised to Have HIV Antibody Testing?

Only a small proportion of the estimated 30 to 60 million persons who received blood or blood products between 1978 and mid-1985 need HIV antibody testing at this time. Many of those at highest risk of exposure, such as hemophiliacs and blood transfusion-dependent persons, have already been tested and are being followed through their treatment programs. In addition to those with hemophilia and symptoms of immune suppression, patients who should be considered for testing include: 1) persons who received blood products collected from areas with a high incidence of AIDS, 2) persons in the previous categories who have been sexually active since receiving the transfusion, and 3) persons with substantial anxiety about the possibility of HIV infection despite reassurances. All individuals testing positive need to be advised about the importance of "safer sex" practices and of referring sexual partners for HIV counseling and possible testing.

Where Can the Test Be Performed and What Special Conditions Apply?

The test is generally available at alternate test sites, private laboratories, Red Cross facilities, some hospitals, and blood donation centers. In most states, alternate test sites offer anonymous and free or low-cost testing.

Prior to testing, patients need to be counseled regarding the possibility of false-positive or false-negative test results, the inability to predict development of AIDS from HIV antibody positivity alone, and the possible loss of insurance or employment if a positive test result is revealed to their insurer or employer. Under no circumstances should the test be performed without the patient's knowledge and informed consent.

Positive ELISA tests should be confirmed by Western Blot or other secondary testing method. Most ELISA positive/Western Blot negative samples are true false-positives. If test results are equivocal, a second blood sample should be drawn for retesting. Because it may take up to six months for detectable IgG-antibody levels to develop, recent sexual partners with initial seronegative results may require retesting.

How Should HIV Seropositive Individuals be Counseled?

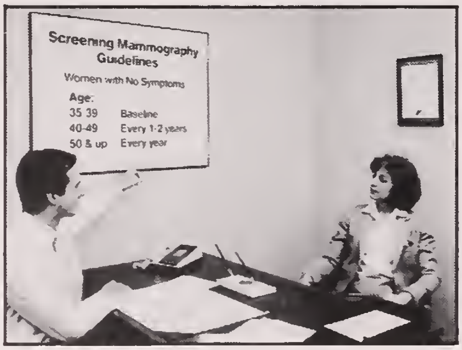
Those with seropositive results should assume that they are infected with HIV and may be infectious to sexual partners. The use of condoms during intercourse will decrease but not eliminate the risk to sexual partners. A seropositive woman who wishes to become pregnant should understand that there is a high probability that her infant will be exposed to the virus *in utero* or at the time of delivery. The risk of exposure to family members, co-workers, and acquaintances through nonintimate contact appears nonexistent. Seropositive individuals should warn persons who may come in contact with their blood (doctors, dentists, phlebotomists) of the need for infection control precautions.

They should avoid sharing razors or other instruments that may be contaminated with blood, and they should not donate blood or body organs.

The risk of developing AIDS or ARC is determined by the degree of immune suppression, which is best determined by periodic complete blood counts and T-helper lymphocyte subset enumeration, if available. Little is known about the role of lifestyle cofactors in affecting the likelihood of developing severe immunodeficiency, but it is prudent to advise avoidance of infection, good nutrition, adequate rest, and psychological support services for the patient and his or her family. In many communities, AIDS support service organizations have specific counseling and support programs for HIV-seropositive individuals. Overall, it is most beneficial to encourage an optimistic attitude about the future and the individual's ability to lead an active and productive life. A calm and supportive approach will strongly influence your patients. However, if signs of severe depression, suicidal ideation, or obsessive preoccupation with the threat of AIDS is present, referral for psychiatric evaluation and treatment is recommended.

How Should You Reduce Your Patient's Fears About AIDS and HIV Infection?

Although some patients will respond to a negative test result with relief, others will continue to experience severe anxiety despite the absence of any laboratory or clinical indication of HIV infection or immunosuppression. Often this is the result of lingering feelings of guilt or shame over having possibly exposed themselves or others to infection, perhaps through an activity unrelated to their receipt of a blood transfusion or blood product. Inquiring about underlying fears and fantasies may help reduce anxiety levels, as will repeated assurances of their health status. Again, if incapacitating anxiety of obsessive ruminations persist despite assurances, mental health service referral is recommended.



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The use of lasers in general surgery
A preliminary assessment

Leonard S. Schultz, M.D.; David F. Hickok, M.D.*, John N. Graber, M.D. +, William E. Stephens, M.D.**

Lasers are emerging as an alternative operative technique for incision and coagulation and hold promise of replacing the cold scalpel and electric cautery. More important, lasers are often less interventional and can reduce postoperative pain and ileus, allowing many "inpatient operations" to be performed as outpatient procedures instead. In addition, they offer the potential of transferring a number of operative procedures into the hands of nonsurgeons (e.g., hemorrhoidectomy done by gastroenterologists). Because of their limitations, however, lasers must be thought of as just one of a number of tools now available to complete a surgical procedure. This paper describes various uses of both the CO_2 and Neodynium (Nd):Yag lasers in general surgery and elucidates their impact on choices of surgical procedures.

Laser Biophysics

Numerous articles have appeared that fully describe the basic physical characteristics of operative lasers.[1-3] Lasers operate in both the visible and non-visible (infrared and ultraviolet) range of the electromagnetic spectrum with Nd:Yag functioning at 1064 nanometers and CO_2 at 10,600 namometers. Because both are invisible, the very low-power visible helium neon (HeNe) laser is used as an aiming beam.

The heat energy imparted to the tissue is a function of the power of the laser (watts), the time of tissue exposure, and the size or diameter of the laser beam at the tissue surface. This relationship is referred to as the Power Density (PD) and is expressed as watts/cm^2. The physician can control the energy imparted to the tissue by either increasing the wattage (Joules/sec), selecting the time of exposure, or by varying the spot size. Recent data suggest that use of high power for shorter time intervals at smaller spot sizes will achieve more efficient target ablation without the secondary thermal damage to adjacent tissues that would otherwise occur through lateral absorption.

The laser consoles allow for such variations by controlling the wattage and the duration of exposure (pulse) while the surgeon controls the spot size by working at the focal point (focused) or at other distances (defocused) by holding the handpiece at varying lengths from the target tissue. Because the focal point represents the site of greatest energy concentration, tissue incision results at that point. Coagulation results at distances other than the focal point (defocused beam).

Once the activated laser beam is produced in a resonating chamber, it can be delivered to the functional end or handpiece either through a series of angled mirrors (the articulated arm in the case of CO_2) or passed down a quartz fiber (as in the argon or Nd:Yag laser). Concentration of the energy by reduction of backscatter can be enhanced at the fiber tip by recently developed "contact" probes. Their claimed benefit is a marked reduction in needed wattage with enhanced coagulation but with longer operating times.[4]

Cutaneous Lesions

Although many laser methods are currently available, the CO_2 laser is most often used for treatment of cutaneous lesions.[5,6]

It can be employed either freehand with or without magnifying lenses or attached to a micro-manipulator, which is another method of magnification. Because the result of lasing is tissue vaporization, a biopsy of the lesion must be done. Once the lesion is selected, a standard scrub and/or prep is used, although the prep may be less extensive than for an excision because the laser will sterilize the lesion. An injection of saline and/or local anesthetic is placed with a 30ga. needle and lasing is begun. The device is used at low wattage (1-3 watts) on either a pulsed or continuous setting and the laser is passed over the lesion first horizontally and then vertically at a steady pace. The physician can remove his or her foot from the activating foot-switch to stop the process at any time.

Vaporization of the lesion will result in a carbon char which is curetted and then cleansed with hydrogen peroxide and the method repeated until the lesion is removed. Lasing is discontinued when the white dermis is encountered. The appearance of fat indicates the laser has gone too deep and may result in significant scar formation. Upon completion, a cream or ointment is applied along with a minimal bandage. The developing scab will be replaced in one to two weeks with a near-perfect scar. This method can be employed successfully for most non-vascular lesions. Port wine stains and hemangiomas require an argon laser and methods different from those described here.[7,8] (Cysts can be obliterated with the CO_2 laser but here the skin is penetrated to the cyst cavity, where the lining is then lased.)

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To date, we have used these methods on common warts, venereal warts, benign moles, basal cell carcinomas, and sebaceous and epithelial cysts — all with excellent healing. Of special significance are basal cell cancers because lasers have eliminated the need for excision and rotation of pedicle flaps for larger lesions.

Such lesions are an excellent introduction for the neophyte laserist, and non-surgeons can easily master this method for office practice.

Gastrointestinal Uses

The CO_2 laser has limited gastrointestinal application. With present technology, the beam cannot be passed down a fiber, and hence cannot be used in association with flexible endoscopy. However, it can be used for rectal and anal lesions that can be brought into view with retractors or an anoscope.[9]

In one of our earlier cases, a patient had a large posterior wall villous adenoma (3 cm x 5 cm) that had been biopsied as benign. The lesion was brought down to the anal verge using standard methods and subserosal dissection was employed. Power varied between 10 and 40 watts and continuous rather than pulsed lasing was used. The beam was focused when cutting and defocused to produce coagulation, resulting in a bloodless field. Follow-up anoscopy at four months indicated no evidence of recurrence.

More recently, we have used the CO_2 laser for hemorrhoidectomy, trying to duplicate the cold scalpel submucosal dissection technique with closure of mucosal flaps. We found no clear advantage over standard operative methods, largely because of bleeding that required the use of electrocautery. Although some authors report success with this method, we have not found this to be the case.[10]

Subsequent cases were done with the Yag laser using the methods described by Dr. Richard Dwyer of Los Angeles (personal communication). Cases with moderate to severe hemorrhoidal disease were chosen (Grade III and IV). They were "A.M. Admits" with preparation carried out at home with a tap water enema administered after admission.

All were done in the prone, jack-knife position under local anesthesia using 1% Lidocaine with 1/4% Marcaine with epinephrine. After anal dilatation, an operating anoscope was introduced and the overlying mucosa was lased along with the length of the hemorrhoid in a "spot-welding" pattern using the Nd:Yag laser at 90 watts with pulses of 0.2 second duration. A circumferential lasing was also done just proximal to the mucocutaneous junction. Three small circumferential incisions were then made, the skin was elevated, and the external hemorrhoids were lased. Redundant tissue was excised and oversewn with 3-0 absorbable suture.* Anesthetic ointment was then placed in the anal canal and light dressings were applied.

Mineral oil, bulk laxatives, sitz baths, and codeine were prescribed for the first postoperative week. The patients had their first bowel movement within 24 hours.

No urinary retention, sphincter spasm, constipation, anxiety, bleeding, or need for parenteral opiates was required. Patients' main complaint was of a mild "burning" on defecation and/or a mucous discharge that usually lasted one to two weeks. All were pleased with their postoperative courses. There was good healing in all cases with return to full activity within one to two weeks. Long-term follow-up on these patients is not yet available.

Greater familiarity with these methods suggests their applicability for performance of hemorrhoidectomy on an outpatient basis.

Abdominal Tumors

Lasers offer a distinct advantage in this area of general surgery because they allow for alternative surgical decisions.[11,12,13]

Case 1: One patient presented with a large right lower quadrant tumor with extension into the groin; biopsy indicated a highly undifferentiated carcinoma of undetermined primary origin. Severe right lower extremity pain secondary to iliac vessel compression prompted exploration prior to planned radiation therapy.

The mass was extensive, filling up the right lower quadrant, extending into the right hemipelvis, compressing the inferior vena cava and the right kidney, and completely encasing the iliac vessels. The CO_2 laser was used at 90 watts in a continuous manner, vaporizing the tumor. A defocused beam provided adequate hemostasis and the superficial absorption of energy allowed for separation from vital structures. Because the length of the procedure was not consistent with clinical guidelines, the laser was put aside midway through the operation and the CUSA "ultrasonic scalpel" was substituted. This tool allowed for much more rapid dissolution of the residual tumor and provided a safe alternative for the iliac vessel dissection. It became evident from this and subsequent procedures that the CO_2 laser is not suitable for very large bulky tumors when clinical judgment dictates a brief anesthetic time period.

The patient's right lower extremity swelling and pain subsided significantly within one week postoperatively. Final pathology indicated a lymphoma, which suggested the feasibility but not the appropriateness of surgical debulking of such lesions prior to radiotherapy. However, should there be a contraindication to radiotherapy, debulking in conjunction with chemotherapy could serve as an alternative to terminal care.

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*This method has since been modified to eliminate the need for excision of redundant tissue.

Case 2: The second case involved a patient with a "frozen pelvis" secondary to metastic ovarian carcinoma; she had already received radiotherapy to the pelvis and had been referred for a diverting ileostomy (previous subtotal colectomy) because of rectal obstruction from progressive tumor growth.

Rather than add the burden of an ileostomy, an attempt was made to vaporize the compressive tumor. This was achieved using the Nd:Yag laser at 90 watts using both continuous and pulsed methods. To prevent damage to adjacent bowel secondary to lateral absorption of heat, the dissection was carried out under a saline pool.

Complete mobilization of her residual rectum was achieved because it was apparent that the tumor, although compressive, was not invasive. Postoperatively she regained the ability to eat normally, and she no longer suffered from the previously incapacitating crampy abdominal pain. She was placed on a new chemotherapy protocol and was doing well at her five-month follow-up.

Case 3: A third patient was referred for hepatic artery infusion catheter placement because of inoperable liver cancer secondary to metastic colon carcinoma originally resected two years previously. The tumor deposits included a contiguous mass in the right lobe and medial segment of the left lobe with diaphragmatic attachment and a solitary 2.5 cm x 3 cm lesion in the anterior portion of the lateral segment of the left lobe.

In addition to placement of an hepatic artery infusion catheter and a continuous flow subcutaneous pump, a non-anatomic dissection was carried out using the CUSA "ultrasonic scalpel" following Hodgson's protocol.[14] The lateral segment tumor mass was resected solely with the Nd:Yag laser at 80 watts of power with a continuous beam. Using both focused and defocused beams, the metastasis was completely resected circumferentially to a maximum liver depth of 5 cm. Thus far, we have found it impossible to maintain complete hemostasis with heat sealing of liver paranchyma at depths greater than 3 cm using the Nd:Yag laser. In this case, circumferential dissection allowed for cuts no deeper than 3 cm on any one surface. This may change with newer technologies such as contact scalpels, which further concentrate energy at the focal point.

Miscellaneous Uses

We have also used lasers in our practice for two commonly performed procedures: cholecystectomy and modified radical mastectomy.

Cholecystectomy was performed through an upper midline incision converted to a right paramedian incision. The skin was incised with a CO_2 laser set at 35 watts. Some carbonization was seen but was wiped away with a damp sponge. Muscle and fascial bleeding was minimal, and no electrocoagulation of the muscle was required. The gallbladder was dissected from the liver in a retrograde manner using the laser at 70 watts to separate it from the gallbladder bed. The laser proved sufficient for coagulation except in cases with acute cystic duct obstruction where electrocoagulation was necessary (the anterior and posterior branches of the cystic artery were clamped and tied). No difficulty was encountered during dissection in the region of the cystic duct-common bile duct junction. We discovered incidentally that at powers of 70 to 80 watts lasing liquified various gallstones.

Analysis of these cases failed to reveal any clear-cut advantage to the use of the CO_2 laser in terms of operative time, ease of dissection, or maintenance of a dry operative field as compared with standard methods. We did note an apparent decrease in postoperative pain in the laser cases, but this issue was not carefully examined. Wound healing was normal.

Modified radical mastectomy was also performed using the CO_2 laser in a manner recently reported.[15] The skin was incised using 30 watts in a continuous mode. Subepitheleal bleeding was controlled with a defocused beam of 70 watts. The surgical field remained virtually bloodless. Skin flap dissection was easier with larger vessels coagulated prior to being incised by defocusing at 70 watts until a char was seen. The dissection of the breast and fascia off the pectoralis major and minor muscles was easier using 40 watts of power. The axillary dissection was completed with the laser at varying powers (20-70 watts) using both continuous and pulse techniques. Drains were placed in the usual manner.

Consistent with recent trends for standard dissection methods, only lower and middle level lymph node dissections were done and typically contained between 15 and 20 nodes.

Postoperative drainage and chest wall pain were minimal, allowing discharge with portable suction reservoirs after three to four days. Readily apparent was the absence of any flap erythema or skin burns, which were occasionally troublesome with electrocautery. As with other skin incisions, carbon deposits were removed with a damp sponge prior to closure. All wounds healed well. Perhaps the laser's ability to sterilize the exposed surfaces and to heat-seal lymphatics played a role in the above findings.[16]

Conclusion

Our 18 months' experience with the CO_2 and Nd:Yag lasers in a general surgical practice allows for a preliminary assessment of their value. Laser techniques greatly simplify cutaneous surgery and improve cosmetic results. We anticipate that general medical practitioners will soon recognize their usefulness in office practice.

Treatment of hemorrhoidal disease has been greatly simplified by laser technology and has resulted in outpatient care with less pain for many patients. Application of lasers to endoscopic methods will further enhance their usefulness.

The ability of lasers to vaporize and coagulate tumors has resulted in advances in debulking not previously attainable with standard techniques. Their greatest contribution may be in cancer surgery because they increase surgical alternatives.

As their use grows, lasers will affect all fields of medicine and surgery, and their many additional benefits will become apparent.

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CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

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IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible)

> IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol However, such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm Propranolol may change thyroid function tests, increasing T_4 and reverse T_3, and decreasing T_3

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case, this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. GENERAL Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

CLINICAL LABORATORY TESTS Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug, especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol

Ethanol slows the rate of absorption of propranolol

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels

Theophylline clearance is reduced when used concomitantly with propranolol

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

PREGNANCY Pregnancy Category C INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

NURSING MOTHERS INDERAL is excreted in human milk Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman

PEDIATRIC USE Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type

Central Nervous System Light-headedness, mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to catatonia, visual disturbances, hallucinations, vivid dreams, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics For immediate formulations, fatigue, lethargy, and vivid dreams appear dose related

Gastrointestinal Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis

Allergic Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress

Respiratory Bronchospasm

Hematologic Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura

Auto-Immune In extremely rare instances, systemic lupus erythematosus has been reported

Miscellaneous Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially tc maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION—*Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS—*Dosage must be individualized.* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS)

MIGRAINE—*Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimal migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

*The appearance of these capsules is a registered trademark of Ayerst Laboratories

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2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily *Arch Intern Med* 1985; 145 1321-1323

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contributions

Surgical correction of pectus excavatum and carinatum

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We present a series of 191 cases of surgical correction of pectus excavatum and carinatum performed by a single surgeon using a single operative technique over a 16-year period. The operative technique, which allows mobilization and fixation of the sternum with relatively minimal dissection, is described. Follow-up by telephone or questionnaire was possible in 95% of cases and averaged 4.3 years postoperatively (range six months to 14.5 years). Mortality was 0.5%, morbidity 5.2%. Patients were asked to rate the cosmetic results of operation as "excellent," "satisfactory," or "unsatisfactory." Results were excellent or satisfactory in 93% of cases where follow-up was available. Results were better in the carinatum group than in the excavatum group, and were better in the excavatum group if operation was performed before six years of age, but were worse in the excavatum group if either scoliosis or Marfanoid features were associated. There was some loss of excellent results with time, but few patients progressed to unsatisfactory. For incompletely defined reasons, the repair has an excellent success rate in patients complaining of exercise intolerance preoperatively. Almost all anterior chest wall pain in patients with carinatum deformity was relieved by correction.

Controversy involving the optimum method for correction of deformities of the sternum and anterior chest wall has been with us since the 1940s when Sweet,[1] Lester,[2] and Ravitch[3] first developed the principle of sternal mobilization as a basis for surgical correction. Part of this controversy is based on conflicting conceptions of the pathogenesis of these deformities. Although there is still no universal agreement, it seems likely that disproportionate growth of peristernal osteocartilaginous structures can produce a disturbance of the normal balance of forces involved in the development of the anterior chest wall.[4-9] This results in the sternal depression known as pectus excavatum or the sternal protrusion known as pectus carinatum.

A wide variety of techniques has been described in the literature for correcting these deformities.[4-15] They are similar in that they all incorporate the three fundamental principles of: 1) sternal mobilization, 2) correction of the position of the sternum, and 3) fixation in that position. They differ in how much dissection is done to mobilize the sternum and the method used to obtain permanent normal fixation. Evaluation of the relative merits of these various techniques is difficult because many series present relatively few patients and comprehensive long-term follow-up is lacking.

The approach presented here differs in two respects from most recent series. First, it involves less peri- and retro-sternal dissection (and therefore the potential for morbidity is less) and second, external fixation is used as the means of maintaining normal position of the sternum for a period of six weeks until healing has occurred and cartilage regrowth has allowed more permanent sternal stabilization. A new simple bracing technique is used that provides protection, minimized pain, and allows, in most instances, a one-day postoperative hospitalization period. Thus, morbidity is decreased as well as the expense to the patient. We believe that the pathogeneses of both deformities (pectus excavatum and carinatum) are not fundamentally different; therefore, we employ the same basic surgical approach (with minor modifications to be noted) in both conditions.

This paper represents the largest series of corrections of costosternal deformities we could find in the English medical literature where a single technique was used by a single operator (ASL). Current follow-up was obtained in 95% of the patients who were operated on between 1968 and 1983. The purpose of this report is to describe these results and briefly present our operative technique.

Materials

In the past 15 years, well over 200 patients have been referred to the University of Minnesota for evaluation of deformities of the anterior chest wall involving the sternum. In some cases the deformities were relatively mild and resolved with postural exercises and muscular development. Since 1961, 191 corrective procedures have been performed for sternal deformities.

In the spring of 1984, these patients were contacted by letter or telephone and a standard questionnaire was administered. The characteristics of the respondents are shown in Table 1.

Table 2 lists presenting patient

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TABLE 1
Characteristics of patients operated on for anterior chest wall deformity from 1968 to 1983

	Pectus Excavatum	Pectus Carinatum
Total operations 1968-83	157	34
Follow-up obtained in 1984	148	33
Range of follow-up (years)	0.5 – 14.5	0.5 – 9.5
Average length of follow-up ± Std. Dev. (years)	4.6 ± 3.5	3.6 ± 2.5
Sex		
Male	99	23
Female	49	10
Age (years)		
Under 3	27	0
3 - 5	55	2
6 - 8	19	2
9 - 11	13	3
12 - 14	16	14
15 - 17	13	10
18 and up	5	2

TABLE 2
Presenting complaints or reasons given for referral

	Pectus Excavatum Number (%)	Pectus Carinatum Number (%)
Concern over appearance	92 (62)	24 (72)
Exercise intolerance	48 (32)	6 (18)
Frequent respiratory infections	15 (10)	1 (3)
Anterior chest wall pain	None	16 (48)
Concern expressed by referring physician over future respiratory compromise	32 (22)	None

TABLE 3
Frequently associated problems

	Number with P. Excavatum	Number with P. Carinatum
Scoliosis	10	5
Hypoplasia of anterior chest wall structures including Poland's syndrome	4	1
Marfan's syndrome	4	0
Marfanoid features	4	0
Mitral valve prolapse	3	0
Asthma	3	0

complaints or reasons for referral. Associated conditions are shown in Table 3. In many cases, the patient had more than one complaint or reason for referral. The decision to operate was based on the clinical impression of the severity of the deformity or symptoms and on the estimation of the chances for improvement with surgery. In most cases, the patients had failed to improve after a course of conservative therapy with postural exercises.

Additional cardiac or pulmonary studies were obtained only in those few cases where ventilatory or cardiac capacity was thought to pose more than the normal risks for general anesthesia. All cases included were performed by one of the authors (ASL) from 1968 to 1978, at the University of Minnesota, and from 1979 to the present at Gillette Children's Hospital in St. Paul.

Surgical Technique and Bracing

The method of exposure for correction of pectus excavatum is similar to that described in other series.[4,7,16] Superior and inferior skin flaps are developed from a transverse curvilinear submammary incision. The pectoral muscles are detached from the sternum and medial costal cartilages and reflected laterally. The costal cartilages of ribs 4-7 are then exposed.

Mobilization of the sternum is performed by complete subperichondral resection of the costal cartilages 4-7 back to the chondrocostal junction. An anterior osteotomy is then performed at the cephalic margin of the point where the sternum turns downward (usually about the level of the third costal cartilage). A wedge of bone with its base on the anterior sternal cortex is removed. Interrupted 3-0 Tevdek sutures are then placed across the osteotomy through the anterior periosteum. A #20 wire surrounded by a plastic sheath is then passed under the inferior end of the sternum using a clamp (care is taken to remain as close to the sternum as possible). The ends of the wire are brought out through the muscle and skin for later attachment to the traction brace. At this point, the sternum can be lifted up, straightened easily, and the preplaced sutures tied.

The pectoral muscles are reapproximated in the midline and sutured to the pectus and external oblique muscles. The wound is closed in layers. A small Hemovac suction drain is left in place for 24 hours. Patients come in as same-day admissions and are discharged the next day. The brace is left in place for six weeks. Bracing stabilizes the chest so chest pain is minimized (figure 1).

Patients treated prior to 1979 were placed in an upper-body plaster jacket with an opening for the incision and an incorporated outrigger apparatus for traction. Since 1979, however, a plastic pre-fitted lightweight modified Jewett brace is applied immediately at the conclusion of surgery. The wires have been attached through a rubber band to a small outrigger attached to the brace and adjusted to exert the proper amount of traction (figure 2).

The technique for exposure of pectus carinatum repair is similar.

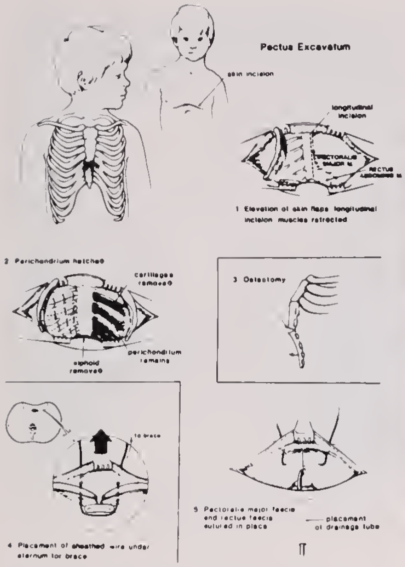
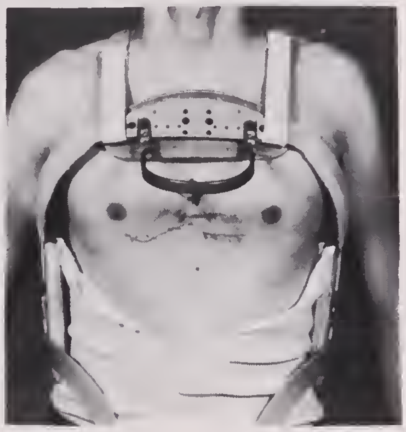

Pectus Excavatum
skin incision
longitudinal incision
PECTORALIS MAJOR M.
RECTUS ABDOMINIS M.
1 Elevation of skin flaps longitudinal incision muscles retracted
2 Perichondrium hatched
cartilages removed
perichondrium remains
xiphoid removed
3 Osteotomy
to brace
4 Placement of sheathed wire under sternum for brace
5 Pectoralis major fascia and rectus fascia sutured in place
placement of drainage tube

FIGURE 1 - Correction of pectus excavatum.



The costal cartilages frequently override the sternum both laterally and inferiorly. It is imperative in correction of pectus carinatum that the overriding portion of cartilages with their perichondrium be removed. The lateral portion of the perichondrium is left intact. At this point, a reverse osteotomy is performed excising a wedge of bone whose base is the posterior sternal cortex. The site of the osteotomy depends on the level of the deformity but is usually placed at the level of the third or fourth rib. The caudal end of the sternum is then easily pushed in. Adjustments in the angle of the osteotomy are made for correction of asymmetrical deformities. Closure is identical to that used for excavatum repair except that no wires are applied. A Jewett brace is then applied, modified with a pressure pad (instead of the outrigger apparatus) over the inferior end of the sternum to maintain the sternum in its corrected position (figure 3).

In 7 of the 31 pectus carinatum patients the deformity was found to be primarily caused by heaped up overgrown costal cartilages surrounding the sternum. This is the so-called "lateral pectus carinatum" described by Lester.[5] In these cases no osteotomy was necessary after resection of ribs 4-7.

Postoperative Care

The brace maintains stability of the chest wall in the immediate postoperative period and neither atelectasis nor flail chest has been a problem. Antibiotics are given on induction prior to incision and continued 24 hours postoperatively. The average hospital stay was six days prior to 1979, but since the new brace has been applied, it has rarely been more than one or two days. Today patients are brought to the hospital the morning of surgery.

The pectus excavatum patients wear their brace continuously for six weeks. At their six-week checkup, the sternal traction wire is simply pulled out in the office or outpatient department. The pectus carinatum patients wear their brace for six weeks continuously, and then only at night for another six weeks. The six-week period allows ample time for complete cartilage regeneration and chest healing, thus decreasing the risk for recurrence.

Although there were sporadic complaints about the brace, usually involving minor discomfort or teasing at school, in most cases the brace did not interfere with normal activities and was well tolerated in all age groups. It may have even had a positive effect on posture in some cases. Postural exercises are prescribed after the brace removal and are continued into the teen-age years.

Morbidity and Mortality

Table 4 lists all complications from the 191 procedures. Mortality was 0.5%, morbidity 5.2%. All complications were in the pectus excavatum group. A description of the course of the one patient who died is given below.

Case History: R.W. was a 17-year-old aesthenic white female with cerebral palsy, kyphoscoliosis, mild mental retardation, and generalized hypotonia, with severe restrictive lung disease. Pulmonary function tests had documented reduced lung volumes and expiratory flow rates with an ineffective cough. She had had pneumonia several times in the past. The patient was in need of scoliosis correction but it was felt that correction of her markedly retracted sternum should be attempted first in an effort to improve her ventilatory mechanics.

A standard pectus excavatum repair was performed as described above. Her course was uneventful until early on the first postoperative day when she vomited, aspirated, and suffered a respiratory arrest. Following intubation and ventilation with positive pressure, chest X-ray revealed a large right tension pneumothorax. The plaster body jacket used at that time was removed for tube thoracostomy. The patient was treated with gentamicin for presumed aspiration pneumonia of the right middle and lower lobes. Subsequent sputum cultures were positive for *Enterobacter pneumonia*. Tracheostomy was performed on the fifth postoperative day and the chest tube removed the following day. She was successfully weaned from mechanical ventilation on the sixth postoperative day. She showed slow but steady improvement over the next week until one evening when she was found unresponsive shortly after endotracheal suctioning. Autopsy revealed thick mucous obstructing the respiratory passages, resulting in asphyxiation as the cause of death.

The only other serious complication occurred in an 11-year-old white male, who on the sixth postoperative day developed a diffuse vasculitis that resulted in mild proliferative glomerulonephritis. This was presumed to have been caused by the cephalosporin he had received as part of his routine postoperative antibiotic coverage. The patient required corticosteroid therapy for two years but has now recovered without sequelae and no longer requires corticosteroid therapy.

Of the pneumothoraces listed, one required closed chest tube drainage for two days. The other two were aspirated in the operating room. One patient had to return to the operating room for removal of a Hemovac drain which had caught on the wire.

There was one superficial wound infection which cleared rapidly with local debridement. No mediastinitis was encountered. One patient with Marfan's syndrome developed a pressure ulcer in the lateral margin of his scar from a plaster cast applied for scoliosis shortly after his pectus surgery. This was excised and closed primarily.

Results

Results tabulated are based on patient evaluation of both cosmetic and symptomatic outcome. These were evaluated separately. Patients' overall evaluations of the cosmetic results of pectus excavatum or carinatum repair were divided into three categories: "excellent," "satisfactory," and "unsatisfactory."

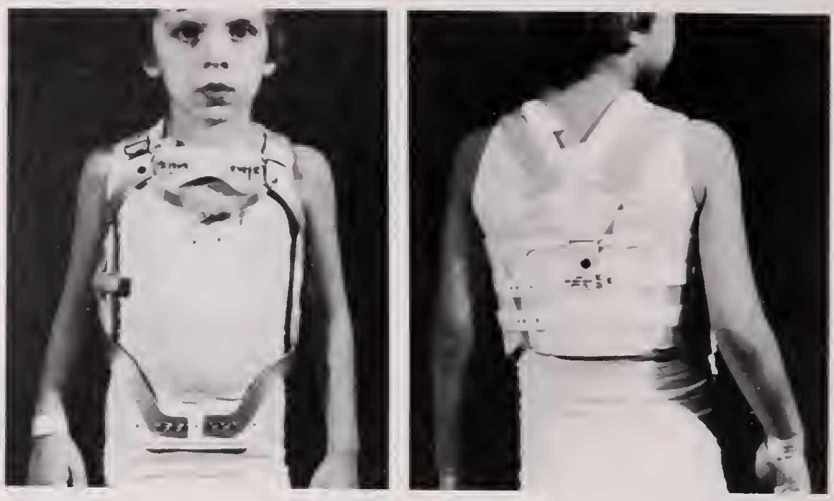


FIGURE 2 - Modified Jewett brace for pectus excavatum. Note the outrigger apparatus providing traction on the repaired anterior chest wall.

"Excellent" described those that resulted in restoration of a normal chest contour with a minimal surgical scar. "Satisfactory" included results that were acceptable but not quite perfect. The most common cause of an imperfect result was mild sternal depression, which occurred in 93% of the cases with satisfactory results. Other causes of imperfect results are tabulated in Table 5. Four hypertrophic scars required revision and one was treated with local injections of corticosteroids. One patient required reoperation nine years later for a prominent sternoclavicular joint.

The "unsatisfactory" group was composed of those patients who were dissatisfied with the postoperative chest contour even if there had been some improvement in appearance or symptoms.

Table 6 shows the cosmetic results of the entire pectus carinatum group followed by a breakdown by age and sex. Table 7 separates the cosmetic results (of the carinatum group) according to length of follow-up. Table 8 tabulates the cosmetic results according to whether the protrusion was of the central (sternal) or lateral costal cartilage type. The lateral type had costal cartilage resection without osteotomy as described previously.

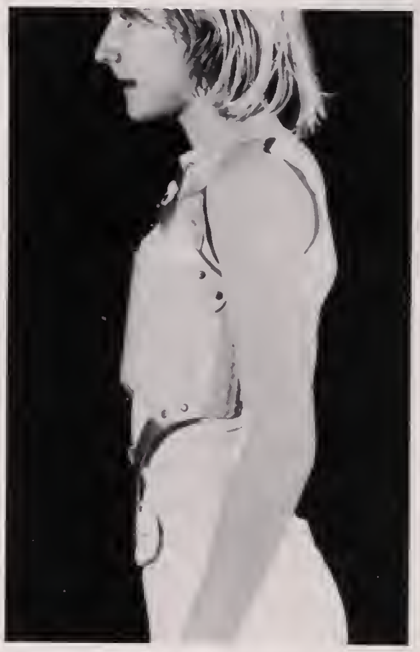


FIGURE 3 - Lateral view of brace for pectus carinatum. Note modification with pressure pad (instead of outrigger apparatus) providing compression on repaired chest wall.

Finally, Table 9 lists the cosmetic results of the subgroup of pectus carinatum patients who also had scoliosis. Most of the patients with pectus carinatum presented and were operated on as teen-agers. Age ranged from five to 21 years and follow-up from six months to ten years.

The most common preoperative symptom in the carinatum

TABLE 4
Complications

Complication	Number of Patients
Death	1
Pneumothorax	
Aspirated intraoperatively	2
Required tube thoracostomy	1
Superficial wound infection	1
Vasculitis	1
Difficulty removing subcutaneous drain	1
Pressure ulcer (from scoliosis cast)	1

group was anterior chest wall discomfort centered over the peak of the patient's sternal protrusion. Postoperatively this was relieved in eleven and improved in four; one patient had persistent anterior chest wall pain of uncertain etiology.

Table 10 shows the cosmetic outcome of the entire pectus excavatum group which is then separated according to age and sex. Table 11 separates the cosmetic outcome (for the excavatum group) by length of follow-up. Table 12 lists cosmetic results in certain subgroups that might be expected to have a less favorable outcome, such as those with scoliosis, Marfan's syndrome, or a family history of anterior chest wall deformity.

Age range for the entire group was 23 months to 27 years and follow-up ranged from six months to 14 years.

Discussion

The positive effect that the repair of sternal deformities has on exercise tolerance has been noted previously.[7,16,17,18] In our experience, a total of 49 of 54 patients (from both the excavatum and carinatum groups) who complained of exercise limitations expressed improvement in this symptom. In addition, 12 of 15 patients who complained of frequent chest colds or pneumonia noted improvement.

The physiologic basis for these findings has remained obscure. Sporadic studies have associated elevated right atrial pressure with pectus excavatum.[19,20] In 1972, a

TABLE 5
Problems in patients who classified their repairs as satisfactory

	Number with P. Excavatum	Number with P. Excavatum
Mild sternal depression (alone or with hypertrophic scar)	72	4
Hypertrophic scar only	2	1
Prominent sternoclavicular joint	2	0
Hypertrophic cartilage	3	2
Asymmetric sternum	0	1

TABLE 6
Cosmetic results of pectus carinatum repair (all cases) and cases separated by age at surgery and by gender

	Number of Cases	Average Follow-up	Cosmetic Results (%)		
			Excellent	Satisfactory	Unsatisfactory
All cases (carinatum)	33	3.5	70	24	6
Age at surgery					
Under 12 years	7	3.4	71	29	0
12 - 18	24	3.4	72	14	14
Over 18	2	3.7	0	100	0
Gender					
Male	23	3.5	65	31	4
Female	10	3.6	80	10	10

TABLE 7
Cosmetic results of pectus carinatum repair — cases separated by length of follow-up

	Number of Cases	Cosmetic Results (%)		
		Excellent	Satisfactory	Unsatisfactory
Length of Follow-Up				
Less than 2 years	12	75	25	0
2 - 4	14	79	7	14
5 - 10	7	43	57	0

TABLE 8
Cosmetic results of pectus carinatum repair — cases separated by central or lateral protrusion

	Number of Cases	Average Follow-up	Cosmetic Results (%)		
			Excellent	Satisfactory	Unsatisfactory
Central (classic)	26	3.6	73	23	4
Lateral	7	4.9	57	29	14

TABLE 9
Cosmetic results of pectus carinatum repair in patients with scoliosis

Number of Scoliotics	Average Follow-up	Cosmetic Results (%)		
		Excellent	Satisfactory	Unsatisfactory
7	3.7	86	0	14

TABLE 10
Cosmetic results of pectus excavatum repair (all cases) and cases separated by age at surgery and by gender

	Number of Cases	Average Follow-up	Cosmetic Results (%)		
			Excellent	Satisfactory	Unsatisfactory
All cases (Excavatum)	148	4.6	41	54	5
Age at surgery					
Under 6 years	82	4.5	53	44	3
6 - 11	32	5.5	29	68	3
12 - 17	29	4.3	24	59	17
Over 18	5	3.2	20	80	0
Gender					
Male	99	4.8	39	54	7
Female	49	4.3	47	51	2

TABLE 11
Cosmetic results of pectus excavatum repair — cases separated by length of follow-up

	Number of Cases	Cosmetic Results (%)		
		Excellent	Satisfactory	Unsatisfactory
Length of follow-up				
Less than 2 years	34	62	35	3
2 - 4	65	42	52	6
5 - 9	35	22	72	6
10 and up	14	36	57	7

TABLE 12
Cosmetic results of surgical repair in selected subgroups of patients with pectus excavatum

Subgroup	Number of Cases	Average Follow-up	Cosmetic Results (%)		
			Excellent	Satisfactory	Unsatisfactory
Patients with Marfanoid features	6	6.9	0	83	17
Scoliotics	10	5.2	20	60	10
Positive family history of anterior chest wall deformity	17	7.1	47	41	12

study at the National Institutes of Health showed that pectus excavatum patients were unable to adequately increase stroke volume with upright bicycle exercise when compared with normal individuals.[21] Unfortunately, until recently, cardiac and pulmonary function testing had failed to distinguish symptomatic from asymptomatic patients with deformities of the anterior chest wall.

In 1982, a group at the Mayo Clinic showed that symptomatic patients with pectus excavatum or carinatum have increased O_2 uptake during bicycle exercise when compared with their asymptomatic counterparts and normal controls.[22] Although they did not measure chest wall compliance, they postulate that symptomatic patients with anterior chest wall deformities must expend a relatively greater proportion of their energy expanding their chests in exercise situations.

The above studies involved small groups using tests that are not widely available. Postoperative studies are scarce,[19,21,23] and the indications for surgery will continue to be based on clinical judgment. It is encouraging, however, that we seem to be moving closer to a rational explanation for the symptoms experienced by these patients and their amelioration by surgery. In the past year, computerized pulmonary function tests of rest and exercise have been carried out on all patients referred for anterior chest wall deformity. Results will be forthcoming when sufficient numbers have been tested.

Turning our attention to cosmetic effects, the pectus excavatum group is separated in Table 9 to examine the effects of sex and age on outcome. Although there was little difference in cosmetic outcome that depended on sex, age at the time of the surgery made a significant difference. The best results occurred in the patients operated on prior to six years of age, whereas the least favorable cosmetic outcome occurred in the adolescent group. Other groups who faired less well are shown in Table 12, including those with scoliosis, Marfan's syndrome, and a family history of anterior chest wall deformity. The overall results for pectus carinatum were somewhat better than pectus excavatum (compare tables 6 and 9).

If one accepts that the pathogenesis of the deformity is related to disproportionate growth of osteocartilaginous structures of the anterior chest wall, then one would expect the rapid growth of adolescence and the more complex derangements of skeletal mechanics in Marfan's syndrome and scoliosis to accentuate any imbalances. The relatively better results seen in the less-than-six-years-old age group in our series (and in others who advocate operating at an early age) may be partly due to the fact that these patients enter a relatively quiescent orderly growth phase and partly that many have not been followed to adolescence (up to ten years later). In our series, of the 82 who were operated on before age six (Table 9), 13 were followed beyond age 12 (arbitrarily defined as the onset of adolescence) and were an average of 14.3 years old at the time of follow-up. Although there were no unsatisfactory results in this subgroup, when compared with the entire population operated on before age six, there was a decline in the number of excellent results to 15%.

Table 10 shows the effect of time elapsed after correction on the ultimate cosmetic outcome of all patients in the excavatum group. Although there is a progressive decline of excellent results in groups followed for longer periods of time, there does not seem to be a progressive increase in the percentage of poor results. This indicates that although some patients may have mild recurrence in the first five years following correction, it rarely progressed to the point of an unsatisfactory result. Furthermore, because the percentage of unsatisfactory results is about the same at all stages (except the less-than-two-year follow-up group), it implies that those who are destined to have unsatisfactory results progress to that point relatively early, from two to five years following correction. Although the numbers are smaller, these same trends apply to the pectus carinatum results (Table 7).

One of the difficulties in understanding the natural history of recurrence of anterior chest wall deformity, as well as in comparing our results to those using other methods, is the lack of large series with comprehensive long-term follow-up. No approach has proven itself clearly superior in preventing recurrence. All begin by restoring normal anatomic relationships, followed by some method of fixation. This usually involves either autologous tissue support, rigid internal fixation (using devices that are usually removed in less than one year), or external fixation as we have described. In many patients, any of the popular approaches would provide good results.

However, in certain cases the relentless expansion of osteocartilaginous growth (often aggravated by conditions predisposing to musculoskeletal imbalance) will cause some degree of recurrence of anterior chest wall deformity. The fact that most poor results established early (within a few years) would suggest that selected patients might benefit from longer use of fixation — in our case external. Conversely, although the method described would seem to offer little advantage over other techniques in protecting against late recurrence of deformities, we have found that these are mild when they occur, as evidenced by the 95% rate of acceptable cosmetic results, even in a subgroup followed for over ten years.

With respect to morbidity, when external fixation is compared with other approaches, there is no retained foreign material, either permanent or temporary, and therefore no second operation is required for its removal. Much less extensive dissection is required in the retrosternal area, and stability of the anterior chest wall in the immediate postoperative period is assured, thereby reducing postoperative pain and pulmonary complications. The objections frequently raised to external fixation, namely infection and inconvenience of the brace, were not a significant problem in the present series. The two unfortunate complications we reported do not seem related to the technique itself, and overall morbidity was minimal and hospitalization short.

Conclusions

■ The operative technique described, in contrast to other popular approaches for the correction of anterior chest wall deformities, allows mobilization and fixation of the sternum with relatively little tissue disruption and provides a stable anterior chest wall in the intermediate postoperative period, thus reducing morbidity. Hospitalization time is decreased significantly.

■ 93% of patients judged their cosmetic outcome acceptable even in the ten-year follow-up group:

a) There is some loss of perfect results with time but few patients progress to significant deformity;

b) Certain selected subgroups (adolescents and those with scoliosis or Marfan's syndrome) had less favorable outcomes.

c) The youngest age groups have the best results but many have not been followed through adolescence.

■ Although the physiological basis is not yet clear, the operation has an excellent success rate in those complaining of poor exercise tolerance preoperatively. Additionally, operative correction has resulted in resolution of anterior chest wall discomfort in nearly all pectus carinatum patients complaining of it.

■ Six weeks' mobilization allowed for excellent chest wall healing and reduced recurrence.

■ Hospitalization time and complication rate have been significantly reduced by this superficial technique and brace application, cutting costs substantially.

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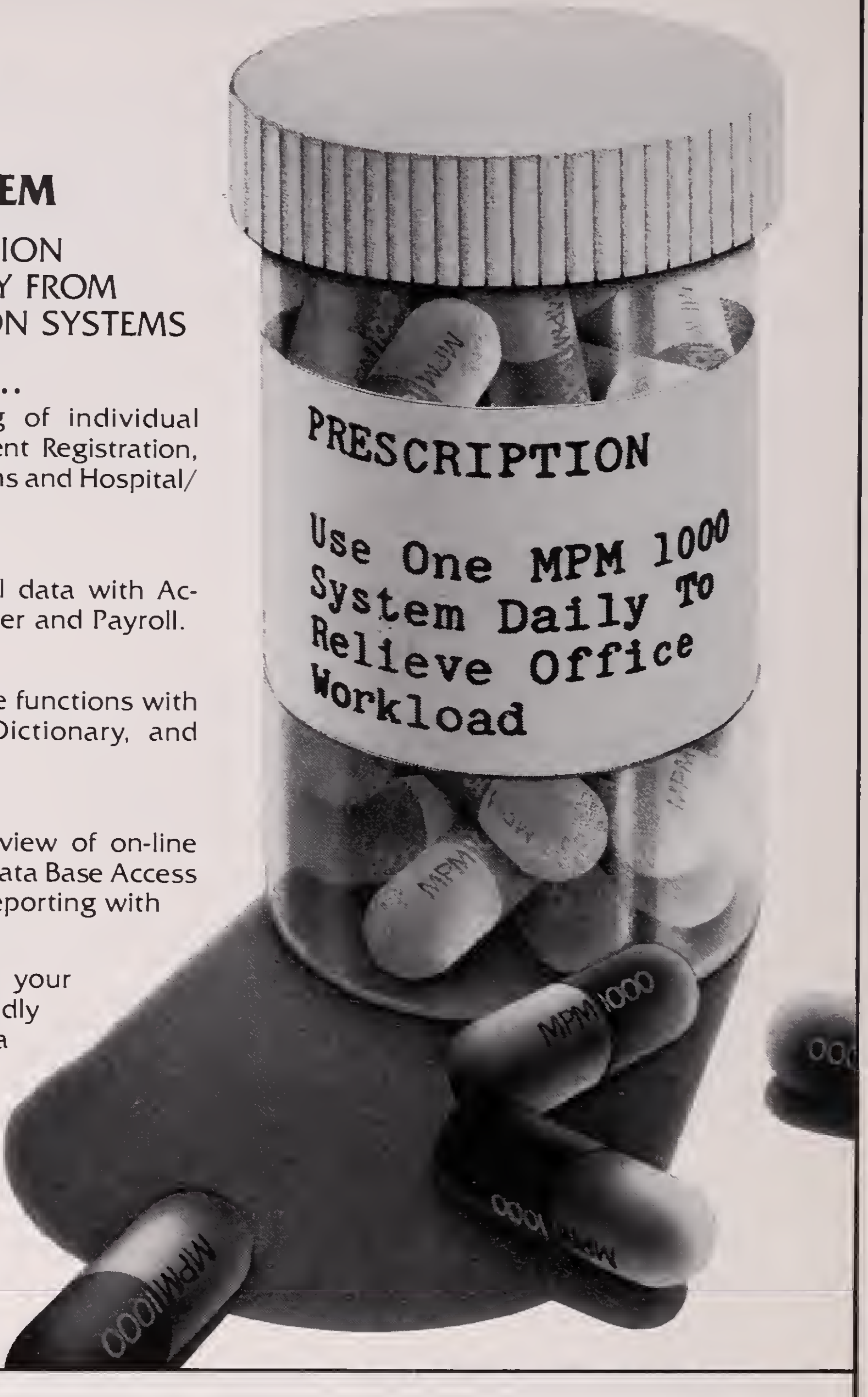

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Acute pseudo-obstruction of the colon: a dangerous form of ileus

Report of two cases

*David S. Arvold, M.D.**

Acute idiopathic pseudo-obstruction of the colon is an uncommon but probably underrecognized form of ileus that can result in cecal perforation. This report describes two cases — one with separate occurrences two years apart after elective total hip arthroplasties, the other case with cecal perforation during a septic episode.

Most physicians are familiar with the problems of adynamic ileus and mechanical large bowel obstruction. However, there is a specific type of ileus that is unusual, often unrecognized, and potentially fatal. This condition, referred to variously as acute pseudo-obstruction of the colon, colonic ileus, idiopathic large bowel obstruction, and Ogilvie's syndrome, is characterized by massive dilatation of the cecum and varying lengths of proximal colon. It is usually associated with severe extraintestinal disease, the uniform lack of mechanical obstruction, and risk of perforation of the cecum. Two patients were recently encountered with this uncommon entity — the first had separate occurrences two years apart after each of two total hip arthroplasties; the second patient's unrecognized acute colonic pseudo-obstruction (ACP) resulted in cecal perforation. Nearly all of the articles on this subject appear in the surgical literature — it is hoped that these cases will alert primary care physicians to this underreported problem.

Case 1

An 80-year-old male underwent a right total hip arthroplasty under spinal anesthesia in April 1983. He developed abdominal distention the first postoperative day, and despite normal bowel sounds was unable to pass flatus. Over the next 14 days he remained distended (with normal bowel sounds) despite the use of a nasogastric (NG) tube, trial of intravenous metroclopramide (Reglan), and rectal tube. Incentive spirometry had been initiated the second postoperative week. Abdominal plain films showed marked colonic dilatation to the level of the rectosigmoid.

Sixteen days postoperatively the right colon was 13-14 cm dilated on X-ray. On the 22nd postoperative day increased abdominal distention, high-pitched bowel sounds, and massive dilatation of the majority of the colon (Figure 1) were demonstrated radiographically. A proctoscopic exam to 22 cm produced much liquid stool. The next day colonoscopy to 90 cm revealed a large colon, much air and stool, and prompt relief of the patient's abdominal distention. He did well thereafter and was discharged in four days. During his hospital course he received 26 doses of meperidine during the first three weeks.

In August of the same year, the patient underwent an uneventful transurethral section of his prostate under spinal anesthesia; he received only a single injection of meperidine. He had no postoperative gastrointestinal problems and was discharged in four days.

In May 1985 he underwent a left total arthroplasty under spinal anesthesia. On the first postoperative day urinary retention and marked abdominal distention occurred. Distention persisted the following day despite passage of some flatus, and abdominal films showed 12-14 cm colonic distention to the rectosigmoid level. Nasogastric suction and intravenous metroclopramide were initiated. Over the next four days normal bowel sounds were heard and the patient was passing some flatus, but his abdomen remained distended. His distention and discomfort increased, and radiographs demonstrated a 20 cm distention of the right colon. Rectal tube insertion resulted in prompt relief of his distention and discomfort — it was used intermittently over the next week, and the patient was able to eat a normal diet. He was discharged on postoperative day 14, only to be readmitted later that day, markedly distended, with his cecum and ascending colon dilated to 25 cm (Figure 2). Rectal tube use and colonoscopy to 110 cm resulted in decompression after evacuation of much stool and gas. He required rectal tube insertion for another two weeks but has done well since. During this hospitalization 10 doses of meperidine were given (discontinued on the 4th postoperative day).

The patient had undergone lumbar laminectomies in 1925 and 1957, and a two-thirds gastrectomy in 1963 for peptic ulcer disease. He had no previous bowel problems (including during the interval between his hip surgeries).

Case 2

A 69-year-old male was admitted by ambulance after he fell at home

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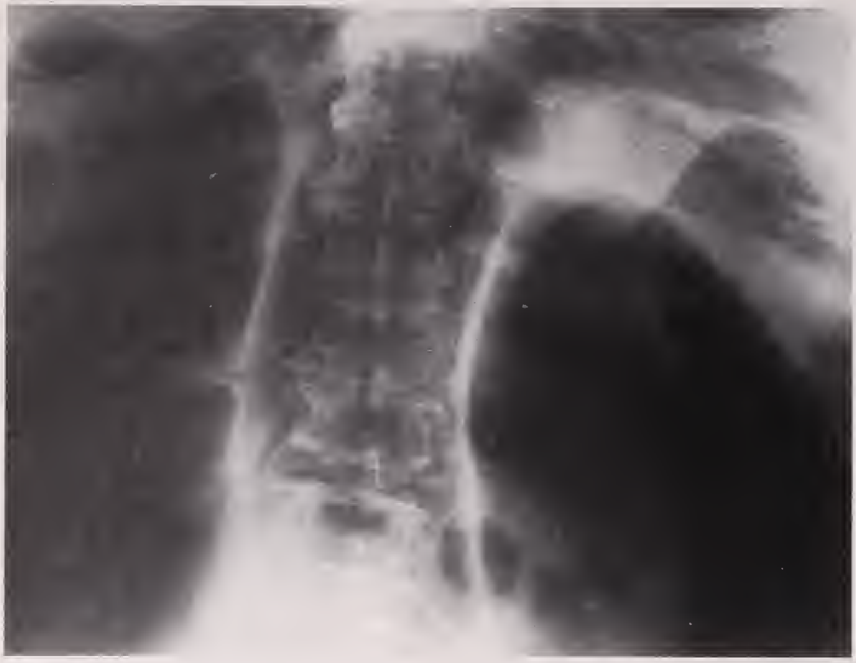

FIGURE 1 - (Case 1) marked colonic dilatation 22 days after first hip surgery, 1983.

and was unable to get up. Emergency room evaluation resulted in an impression of sepsis of genitourinary source, with hypotension, fever, pyuria, and bacteruria. He was started on nafcillin and gentamicin. Both blood and urine cultures subsequently grew E. coli.

The patient's medical history was remarkable for congestive heart failure and pulmonary emboli 16 months prior to admission, severe degenerative arthritis, massive obesity, and an episode of melena one year earlier (evaluation had shown only sigmoid diverticula).

The patient had a known right renal calculus, which was still present, as shown by ultrasound examination. After three days of persistent fever, he underwent placement of a pigtail catheter to the right renal pelvis. Marked colonic dilatation was reported by the radiologist on the retrograde pyelogram films (Figure 3). Later that day he developed acute respiratory distress with severe hypoxemia, temperature to 40°C, pulmonary wheezing, and atrial fibrillation. He was heparinized for possible pulmonary emboli and given additional furosemide for radiographic pulmonary vascular congestion. He stabilized for 24 hours, then redeveloped acute respiratory distress, increased abdominal distention, high-pitched bowel sounds, and hypotension. His white blood cell count was 28,000/cm^3. An abdominal film showed marked colonic distention with cecal diameter of 14 cm and free air. He was taken to surgery, where a perforated cecum and purulent peritonitis were discovered but no mechanical obstruction was found. A right colectomy with placement of drains was accomplished. The patient was discharged from the hospital ten days later.

Discussion

In 1949 Ogilvie reported a new clinical syndrome he termed "large intestine colic," which mimicked mechanical distal colonic obstruction.[1] By 1980, a world literature review by Nanni et al.[2] had produced 351 cases of what has been called "Ogilvie's syndrome," to which they added four more cases. Additional cases and suggestions for management have appeared since, primarily in the general surgical or gastroenterology subspecialty journals.[3-8] These two cases illustrate the pertinent features of the syndrome and the pitfalls of non-recognition of this serious condition.

The hallmarks of acute colonic pseudo-obstruction include: 1) massive gaseous dilatation of the cecum and proximal colon, with relative absence of distal colonic gas; 2) lack of air fluid levels radiographically; 3) paucity of nausea, vomiting, and abdominal tenderness; and 4) presence of bowel sounds. Flatus may be passed. The patient may experience abdominal cramps with either constipation, or less commonly, diarrhea. Additional radiographic features include a cut-off of colonic gas distally, thin septae, and nonedematous colonic walls. The syndrome is probably a specific variety of adynamic or inhibition ileus confined to the colon, in contrast to the more common form, which involves both large and small bowel. The latter generally shows small bowel dilatation and air-fluid levels.

Typically, the patient is older (most are over 50), has been hospitalized for other problems, and is usually bedridden. Trauma, a wide variety of surgery, and serious medical conditions have all been reported as precipitating factors, as have pregnancy and delivery. Chronic alcoholism, sepsis, congestive heart failure, myocardial infarction, and neurologic diseases (strokes, Parkinsonism, etc.) are some of the medical conditions reported in association with ACP. Anuras and Shirazi list 45 separate associated causes in their review of the literature.[5] Psychotropic drugs and laxative abuse are other known causes.

ACP has been reported after total hip arthroplasty (THA). Efteker et al. noted 27 of their series of 800 patients had prolonged "paralytic ileus," and one patient died of a perforated cecum.[9] Bachu-

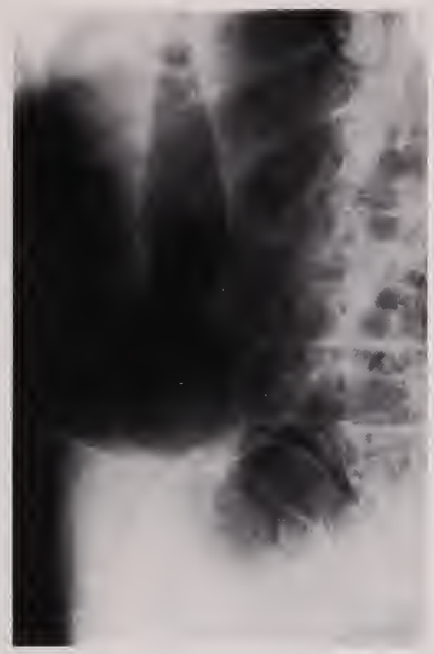

FIGURE 2 - (Case 1) cecal dilatation of 25 cm following second hip surgery, 1985.

lis found in his series of 35 cases of ACP, two had undergone THA and another five had a hip fracture with pinning.[7] Coventry, in 1974, reported that 19 of 2,012 THA cases had postoperative "prolonged ileus"; one experienced toxic megacolon.[10] It is probable that many of these prolonged paralytic ileus cases represent ACP. In Case 1, the patient's separate episodes after hip surgeries two years apart was interesting (and not recognized as ACP initially). Also notable was the fact that the ACP did not occur after his urologic surgery (which is reported as being the most frequent type of surgery associated with ACP in males).[4] Perhaps the more frequent use of narcotic analgesics (which can alter bowel motility) with his hip surgeries was a factor. There is a form of colonic pseudo-obstruction that is chronic and has been described in a few reports. Postprandial abdominal pain and distention along with radiographic colonic dilatation at the time of symptoms are its reported features. Cecal perforation is extremely rare. Case 1 did not exhibit its features. For a more extensive discussion, the reader is referred to a review article by Anuras and Shirazi.[5]

Cecal perforation, which can result from ACP, was first reported in 1958.[8] In Nanni's literature review, 52 patients (15% of the 351 patients) perforated. Mortality in this group was 45%.[2] As in Case 2, 8 of those 252 patients had sepsis as an associated disorder. The risk of perforation rises, by LaPlace's law ($T = PD$), as cecal diameter increases. The cecum is the site of rupture because, with equal pressure throughout the colon, the greatest distention occurs at the site of greatest initial diameter. It is here that the tensile strength of the colon wall is first exceeded. The term "idiopathic cecal dilatation" has been used to describe the disorder in patients whose acute massive distention is confined to that region; however, the risk of perforation and management is the same. Some authors have stated that diameters of over 12 cm should prompt more aggressive therapy (cecostomy or colonoscopy). Others feel that 9 cm is the cut-off. However, a cecal diameter of 25 cm has been managed conservatively.

The pathogenesis is unknown and may represent more than one mechanism. Ogilvie postulated an autonomic imbalance in colonic innervation, hypothesizing it was a result of a relative deficit of sympathetic input.[1] Most now favor parasympathetic deficits as more likely. No pathogenetic study has been done and would be difficult, given the transient nature of this uncommon problem. Past lumbar surgeries described in Case 1 raise the question of anatomic interference with sacral parasympathetic outflow. Prostaglandins and other neurohumoral influences have also been postulated.

The management of ACP includes the following: 1) stopping all narcotics and other agents that interfere with bowel function; 2) avoiding incentive spirometry, which may contribute to gaseous distention; 3) placing nasogastric and rectal tubes (the latter may not help if the functional obstruction is more proximal); 4) correcting fluid and electrolyte abnormalities; 5) careful following of clinical exam, radiographs of the abdomen, and white blood cell counts regarding the risk of cecal perforation. If cecal diameter approaches 12 cm, colonoscopy should strongly be considered as a diagnostic and therapeutic maneuver. Many reports have attested to its value.[5-8] Although colonoscopy may be more difficult and hazardous in this situation, with a minimally or unprepped colon, colonic dilatation probably offsets these problems. Currently, it is the diagnostic (ruling out obstruction) and therapeutic (decompression) procedure of choice. Barium enema has been thought by some to be unduly risky in terms of precipitating colonic rupture. If attempted, it should be done with Gastrografin® at low pressure. Finally, decompressive tube cecostomy should be considered if colonoscopy is unsuccessful or unavailable.

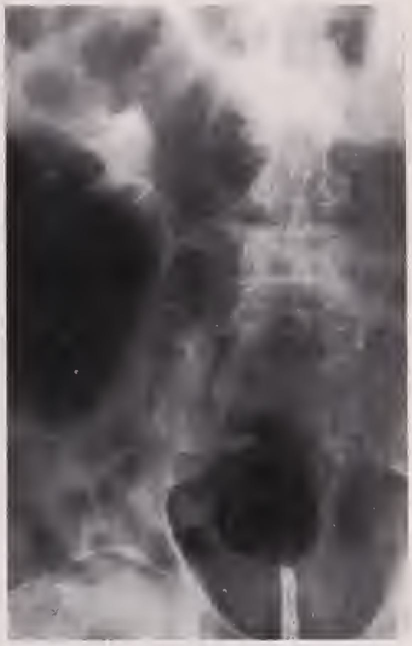

FIGURE 3 - (Case 2) retrograde pyelogram showing marked cecal dilatation. Cecum subsequently perforated.

Acknowledgment

The author is grateful to Dr. Alan Johns and Dr. Howard Meyer for permission to report Case 2.

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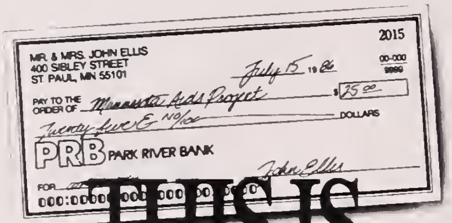

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Perforation of the esophagus by chicken bones
A report of two cases and a review of the literature

Keith Henry, M.D.; Camillo Toro, M.D.*; and Kent B. Crossley, M.D.**

A perforated esophagus is an uncommon life-threatening disorder. Two patients are described who were admitted within 24 hours of each other who developed suppurative infections after esophageal perforation caused by chicken bones. A review of the literature found 243 cases of esophageal perforation, of which 25 (4.6%) were due to foreign bodies. Only three of those cases were due to bones of any type. The cases demonstrated that perforation of the esophagus due to a chicken bone can be difficult to diagnose. A history of choking on a bone in a patient with fever and chest pain should prompt a careful search for possible esophageal perforation.

A perforated esophagus can be a life-threatening disorder but fortunately is rare.[1] Most commonly, perforation is caused by a complication of endoscopy. Other causes of perforation include neoplastic, postoperative trauma, postemetic (Boerhaave's syndrome), and foreign bodies. We recently cared for two patients admitted within 24 hours of each other who developed suppurative infections after esophageal perforation caused by chicken bones. A review of the literature revealed that little data existed on chicken bones as a cause of esophageal perforations and prompted this report.

Case 1

A 63-year-old Asian-American businessman was admitted to the hospital with a three-day history of progressive anterior chest pain, dysphagia, and fever. His symptoms developed after he had choked on a piece of chicken. He was seen that day in a local emergency room where direct and indirect laryngoscopy failed to detect any abnormalities or foreign body.

The patient's physical examination on admission was significant for a temperature of 101.3°F and for his subjective description of severe retrosternal pain when asked to swallow. His white cell count was 15,500/cu mm with a predominance of band forms. A chest X-ray revealed no abnormalities. X-ray films of the esophagus after oral Gastrografin® excluded a major esophageal rupture. A barium swallow study showed evidence of extrinsic esophageal compression at the level of the clavicles, shifting the esophagus to the left. Delayed films showed extraluminal retention of barium consistent with a small esophageal perforation. Endoscopy revealed a small mucosal laceration approximately 15 cm from the front teeth without evidence of a foreign body.

Penicillin, clindamycin, and gentamicin were given intravenously, and the patient was taken to surgery. A large para-esophageal abscess was evacuated through a right neck incision. *Streptococcus pneumoniae, Streptococcus viridans*, diphtheroid species, and yeast were isolated from the aerobic cultures. Anaerobic cultures grew gram-positive and gram-negative bacilli which were not further identified. The patient improved promptly and was afebrile on the second postoperative day. On repeat endoscopy, a 3 cm long chicken bone was removed from the esophagus at 18 cm from the front teeth. A follow-up chest X-ray indicated small bilateral pleural effusions. The patient was discharged on the sixth postoperative day and received oral penicillin for an additional 15 days. Two weeks later, he was asymptomatic.

Case 2

An otherwise healthy 42-year-old male presented to the emergency room with a two-day history of progressive dysphagia after having swallowed a large piece of chicken. He described his pain as maximal in the base of his neck, anteriorly extending to the chest and interscapular region with swallowing. His physical exam revealed a temperature of 102°F. His neck was tender to palpation on both lateral aspects of the larynx. No crepitation of the soft tissue of the neck or thorax was noted. Auscultation revealed clear lung fields and abdominal examination was normal.

The white cell count was 11,800/cu mm with a significant left shift. A chest X-ray revealed no significant abnormalities. A barium swallow study showed an intraluminal filling defect at the level of the second thoracic vertebral body. Emergency endoscopy removed a "V-shaped" bone fragment consistent with part of a chicken wishbone at approximately 20 cm from the front teeth. There was evidence of local mucosal laceration with some suppurative changes, and the patient was admitted to the hospital for further therapy. He was made NPO and started on intravenous fluids, penicillin, clindamycin, and gentamicin.

His clinical course over the

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next 24 hours was characterized by persistence of fever, leukocytosis, and an increase in neck pain. A repeat barium swallow study revealed enlargement of the prevertebral space extending from C-2 through C-7. The patient was taken to surgery where a large retropharyngeal abscess was drained. Culture of the fluid obtained at surgery grew non-group A beta-hemolytic streptococcus in addition to usual mouth flora. The patient became afebrile on the second postoperative day and was discharged on oral penicillin on the fifth postoperative day. He was seen a month later and was asymptomatic with a normal esophagus on endoscopy.

Discussion

These cases demonstrate that perforation of the esophagus due to a chicken bone can be difficult to diagnose. Radiographic studies did not reveal the bones and provided only indirect evidence by showing either a perforation or a para-esophageal mass. The history of choking on a chicken bone proved to be the key to diagnosis, which was confirmed by endoscopy (although the procedure needed to be done twice in Case 1). Despite prompt recognition of the perforation and institution of antibiotics, serious suppurative complications of esophageal perforation are likely to occur (as seen in Case 2).

Perforation of the esophagus due to a foreign body is a rare event. The eight series of perforations described in the literature[2-9] encompass 543 cases of esophageal perforation, of which 25 (4.6%) were due to foreign bodies. That information is summarized in Table 1, including data on location of the foreign body-related perforation. Detailed information on the nature of the foreign body involved is lacking but bones of any type are only mentioned in three cases. Of those, one was a chicken bone,[4] one was described merely as a bone,[5] and one nonspecified bone led to a fatal case.[6] Detailed information on the microbiology of infections related to esophageal perforations is found in only one series.[9]

TABLE 1
Perforations of esophagus due to foreign bodies

Author (Ref.)	Time Period	Perforations Total/FB	Location FB Perforations	
Seybold[2]	1907-1949	50/13	Cervical	3
			Upper thoracic	4
			Midthoracic	1
			Lower thoracic	1
Wichern[3]	1970	199/6	Cervical	2
			Lower thoracic	4
Rosoff[4]	1958-1973	68/2	Upper thoracic	1
			Lower thoracic	1
Sawyers[5]	1935-1973	64/2	Cervical	2
Lyons[6]	1978 ?	31/1	Not specified	
Skinner[7]	1970-1980	48/0	Not specified	
Goldstein[8]	1966-1980	50/1	Cervical	1
Ajalat[9]	1971-1984	33/3	Not specified	
TOTALS		543/25		

The standard management of esophageal perforations has been somewhat controversial. For major tears, an aggressive approach combining surgery and antibiotics is generally accepted.[1,5] Recently, several reports[6,9] have suggested that small tears, especially those due to instrumentation, may be successfully managed by observation and antibiotics. As our two cases demonstrate, this approach cannot be recommended for tears, however small, due to foreign bodies. Foreign bodies may well act as a conduit for bacteria to reach the para-esophageal space and may be protected from the ensuing inflammatory response. The key to appropriate therapy in foreign body perforation of the esophagus is probably not the nature of the foreign body but rather the rapidity at which therapy is instituted and the foreign body removed.

The microbiology in both our cases revealed a mixed flora, which supports the use of empiric broad-spectrum antibiotics active against aerobes and anaerobes in the management of similar cases. Although consumption of fish and chicken has been increasing in the United States, reports of esophageal perforation due to bones are rare despite the observation of many emergency room physicians that it is not uncommon to see patients with concern about a bone lodged in the throat. Such a history in a patient with fever and chest complaints should prompt a careful search for a possible esophageal perforation.

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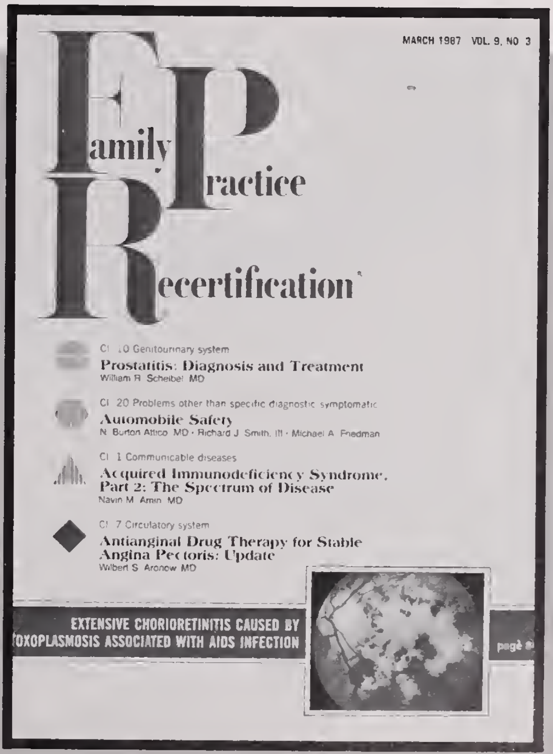

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* WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: **Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired.** If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 5D% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Dbserve regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

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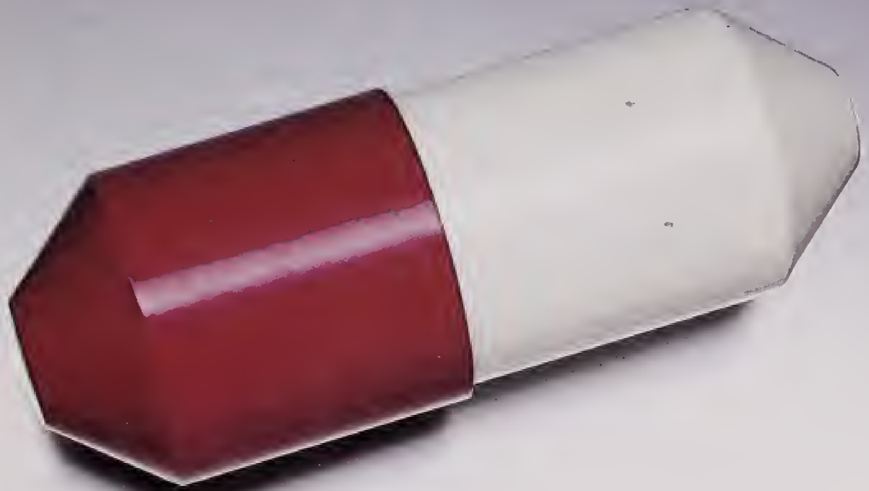

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*P = 0.01 †P = 0.0004 % life-table estimates

All patients were permitted prn antacids for relief of pain.
Adapted from Silvis[1] and Gough[2]

These two trials[1,2] used the currently recommended dosing regimen of cimetidine (400 mg h.s.) and ranitidine (150 mg h.s.). A comparison of other dosing regimens has not been studied.
The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nocturnal acid.
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Zantac® 150 h.s.

ranitidine HCl/Glaxo 150 mg tablets

Glaxo/ROCHE® See next page for references and Brief Summary of Product Information.

ZAN375 July 1987

References: 1. Silvis SE, Griffin J, Hardin R, et al: Final report on the United States multicenter trial comparing ranitidine to cimetidine as maintenance therapy following healing of duodenal ulcer. *J Clin Gastroenterol* 1985;7(6):482-487.
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ZANTAC® 150 Tablets
(ranitidine hydrochloride)
ZANTAC® 300 Tablets
(ranitidine hydrochloride)

BRIEF SUMMARY OF PRODUCT INFORMATION

The following is a brief summary only. Before prescribing, see complete prescribing information in ZANTAC® product labeling.

INDICATIONS AND USAGE: ZANTAC® is indicated in:
1. Short-term treatment of **active duodenal ulcer.** Most patients heal within four weeks.
2. **Maintenance therapy** for duodenal ulcer patients at reduced dosage after healing of acute ulcers.
3. The treatment of **pathological hypersecretory conditions** (eg, Zollinger-Ellison syndrome and systemic mastocytosis).
4. Short-term treatment of **active, benign gastric ulcer.** Most patients heal within six weeks and the usefulness of further treatment has not been demonstrated.
5. Treatment of **gastroesophageal reflux disease (GERD).** Symptomatic relief commonly occurs within one or two weeks after starting therapy and is maintained throughout a six-week course of therapy.

In active duodenal ulcer; active, benign gastric ulcer; hypersecretory states; and GERD, concomitant antacids should be given as needed for relief of pain.

CONTRAINDICATIONS: ZANTAC® is contraindicated for patients known to have hypersensitivity to the drug.

PRECAUTIONS: Symptomatic response to ZANTAC® therapy does not preclude the presence of gastric malignancy.

Since ZANTAC is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see **DOSAGE AND ADMINISTRATION**). Caution should be observed in patients with hepatic dysfunction since ZANTAC is metabolized in the liver.

False-positive tests for urine protein with Multistix® may occur during ZANTAC therapy, and therefore testing with sulfosalicylic acid is recommended.

Although recommended doses of ZANTAC do not inhibit the action of cytochrome P-450 enzymes in the liver, there have been isolated reports of drug interactions which suggest that ZANTAC may affect the bioavailability of certain drugs by some mechanism as yet unidentified (eg, a pH-dependent effect on absorption or a change in volume of distribution).

Lack of experience to date precludes recommending ZANTAC for use in children or pregnant patients. Since ZANTAC is secreted in human milk, caution should be exercised when administered to a nursing mother.

ADVERSE REACTIONS: Headache, sometimes severe, seems to be related to ZANTAC® administration. Constipation, diarrhea, nausea/vomiting, and abdominal discomfort/pain have been reported. There have been rare reports of malaise, dizziness, somnolence, insomnia, vertigo, tachycardia, bradycardia, premature ventricular beats, and arthralgias. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients.

In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg qid IV for seven days, and in 4 of 24 subjects receiving 50 mg qid for five days. With oral administration there have been occasional reports of reversible hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice.

There have been rare reports of reversible leukopenia, granulocytopenia, thrombocytopenia, and pancytopenia.

Although controlled studies have shown no antiandrogenic activity, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving ZANTAC, but the incidence did not differ from that in the general population.

Incidents of rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia, have been reported, as well as rare cases of hypersensitivity reactions (eg, bronchospasm, fever, rash, eosinophilia) and small increases in serum creatinine.

OVERDOSAGE: Information concerning possible overdosage and its treatment appears in the full prescribing information.

DOSAGE AND ADMINISTRATION: Active Duodenal Ulcer: The current recommended adult oral dosage is 150 mg twice daily. An alternate dosage of 300 mg once daily at bedtime can be used for patients in whom dosing convenience is important. The advantages of one treatment regimen compared to the other in a particular patient population have yet to be demonstrated.

Maintenance Therapy: The current recommended adult oral dosage is 150 mg at bedtime.

Pathological Hypersecretory Conditions (such as Zollinger-Ellison Syndrome): The current recommended adult oral dosage is 150 mg twice a day. In some patients it may be necessary to administer ZANTAC 150-mg doses more frequently. Doses should be adjusted to individual patient needs, and should continue as long as clinically indicated. Doses up to 6 g/day have been employed in patients with severe disease.

Benign Gastric Ulcer: The current recommended adult oral dosage is 150 mg twice a day.

GERD: The current recommended adult oral dosage is 150 mg twice a day.

Dosage Adjustment for Patients with Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with ZANTAC, the recommended dosage in patients with a creatinine clearance less than 50 ml/min is 150 mg every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosage schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

HOW SUPPLIED: ZANTAC® 300 Tablets (ranitidine hydrochloride equivalent to 300 mg of ranitidine) are yellow, capsule-shaped tablets embossed with "ZANTAC 300" on one side and "Glaxo" on the other. They are available in bottles of 30 (NDC 0173-0393-40) and unit dose packs of 100 tablets (NDC 0173-0393-47).

ZANTAC® 150 Tablets (ranitidine hydrochloride equivalent to 150 mg of ranitidine) are white tablets embossed with "ZANTAC 150" on one side and "Glaxo" on the other. They are available in bottles of 60 tablets (NDC 0173-0344-42) and unit dose packs of 100 tablets (NDC 0173-0344-47).

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rheumatology corner

Hepatic manifestations of rheumatic disorders

Michael O'Neill, M.D., and Robert D. Leff, M.D.†*

Although hepatic manifestations of rheumatic disorders are uncommon, occasionally there is an association with primary liver diseases and secondary rheumatic symptoms and signs. Below is a brief summary of the more common hepatic manifestations of rheumatic diseases as well as the rheumatic manifestations of primary liver disease.

Primary liver diseases can be associated with arthropathy. Up to 40% of patients with viral hepatitis B can expect to develop rheumatic symptoms and signs. Individuals may develop fever and arthralgia in the anicteric and prodromal phase of the hepatitis, or after the symptomatic hepatitis is noted. In many cases, symmetrical poly-arthritis involving the proximal interphalangeal joints ensues. The arthritis is usually mild, transient, and nondeforming. Large weight-bearing joints may occasionally be involved. Arthralgia and stiffness commonly accompany chronic active hepatitis. The arthralgia typically involves the large joints and may be transient, recurrent, or migratory. Periarticular swelling and erythema may be present, but residual joint deformity is rare. Primary biliary cirrhosis can cause an erosive arthropathy of the distal small joints, but it is rarely associated with rheumatic arthritis or the CREST syndrome (calcinosis, Raynaud's phenomenon, esophageal dysphagia, sclerodactyly, and telangiectasia). Hemochromatosis causes arthropathy in more than 20% of patients. A degenerative arthropathy involving the metacarpal, proximal, and distal interphalangeal joints as well as the hips and knees is the most common manifestation. Chondrocalcinosis may be noted in the cartilage of the knee, symphysis pubis, hip, and metacarpophalangeal joints. Osteopenia and a premature degenerative arthritis with subchondral bone fragmentation is common in Wilson's disease. The wrists and knees are particularly susceptible, and periarticular calcifications and bone fragments occur.

Liver involvement may occur secondary to a particular rheumatic disease. It is prominent in Still's disease — systemic onset juvenile rheumatoid arthritis. A significant number of children with Still's disease will have hepatosplenomegaly and elevated serum transaminases. Biopsy specimens have shown nonspecific infiltration of mononuclear inflammatory cells in the portal tracts and Kupffer's cell hyperplasia. Severe or chronic liver disease is occasionally reported. One analysis showed 16% of deaths in patients with JRA attributable to liver disease (the contribution of hepatotoxic drugs to this mortality is not known). Signs and symptoms of hepatic dysfunction usually regress with improvement in the arthritis. Still's disease can also occur in adults, and occasionally hepatomegaly and elevated serum transaminases are noted.

Rheumatoid arthritis can cause hepatomegaly, mildly elevated levels of alkaline phosphatase (AlkP) 2-3 times normal, and occasionally elevated serum transaminases. The incidence of liver enzyme abnormalities as reported in the literature varies from 10% to 50%. Biopsy specimens show nonspecific changes similar to those found in JRA. Despite the biochemical abnormalities, clinical signs of liver disease are usually lacking. The serum alkaline phosphatase level tends to directly correlate with arthritic activity. Rare reports of necrotizing arteritis, nodular noncirrhotic hyperplasia and resultant portal hypertension, and spontaneous hepatic rupture have appeared. In those patients in whom rheumatoid arthritis manifests as Felty's syndrome (associated leukopenia and splenomegaly), elevated alkaline phosphatase and BSP retention are not uncommon. Almost unique to Felty's syndrome among the connective tissue disorders is the association with nodular regenerative hyperplasia. This can cause portal hypertension, esophageal varices, and even macronodular cirrhosis. There is no direct correlation between abnormal liver chemistries and the presence of abnormal findings on liver biopsy.

Hepatomegaly and elevated AlkP may occur in systemic lupus erythematosus (SLE). Clinically severe liver disease is generally not a significant problem in SLE. The spectrum of liver disease may include (although rarely) cirrhosis, chronic active hepatitis, granulomatous hepatitis, chronic progressive hepatitis, steatosis, and cholestasis. Hepatic arteritis and infarcts, hepatic rupture, and granulomatous hepatitis have been reported.

Polyarteritis nodosa, a systemic vasculitis of medium and small arteries, does involve the liver. Frequently, an elevated AlkP

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without elevated bilirubin or transaminase levels is noted, and hepatitis B antigen may be present. Hepatic arteritis occurs in 40% to 70% of patients. Usually this involvement is asymptomatic, but aneurysmal rupture and massive hemorrhage has been reported. Polyarteritis nodosa is the most common cause of hepatic infarction, which may be heralded by right upper quadrant pain, jaundice, and fever. Liver biopsy commonly shows necrotizing vasculitis with aneurysms, infarction, and hepatitis. Hepatic involvement can be diagnosed by angiographic evidence of multiple small aneurysms.

Polymyalgia rheumatica is characterized by pain and stiffness in pelvic and shoulder girdles, elevated erythrocyte sedimentation rate, and prompt clinical response to low-dose corticosteroids. A closely related disorder, giant cell arteritis, is an arteritis of the larger arteries and may manifest itself in local symptoms attributable to the involved artery (e.g., headache, blindness, jaw claudication, aortic arch syndromes) or as a systemic disorder with symptoms of fever, anemia, weight loss, or malaise. The systemic manifestations may include polymyalgia rheumatica, and conversely, many patients with polymyalgia show arteritis on biopsy. Elevated AlkP and prolonged BSP excretion are often found, but the abnormalities are slight to moderate, and liver biopsy has shown nonspecific mononuclear cell infiltration or slight fatty changes. The elevated AlkP correlates with severity of the systemic symptoms and tends to resolve with steroid therapy.

Sjogren's syndrome, a triad of keratoconjunctivitis sicca, xerostomia, and a connective tissue disease (frequently rheumatoid arthritis), is associated with hepatomegaly, increased BSP retention, and elevated AlkP in up to 20% of cases. Antimitochondrial antibodies are found in 6% to 11% of patients, and there is an occasional association with primary biliary cirrhosis. The presence of antimitochondrial antibodies in Sjogren's correlates with more severe liver disease.

Scleroderma infrequently involves the liver. There are rare reports of occlusion of extrahepatic ducts secondary to arteritis. Also, spontaneous liver rupture and portal hypertension with bleeding varices have been noted. The CREST syndrome may be associated with primary biliary cirrhosis as mentioned earlier.

Finally, a number of rheumatic conditions including rheumatoid arthritis, ankylosing spondylitis, JRA, Reiter's syndrome, and psoriatic arthritis may give rise to secondary amyloidosis involving the liver, but clinical evidence of liver disease is unusual.

Conclusions

Rheumatic disorders can be present with liver involvement. It is important to be cognizant of this relationship to prevent an erroneous diagnosis or to search for other diseases that affect the liver such as malignancies or infection. It is also important to recognize that liver disease can present with significant rheumatic signs and symptoms.

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References: 1. Flamenbaum W: *Am J Cardiol 57*(2):38A-43A, 1986 **2.** Brater DC, Fox WR, Chennavasin P: *J Clin Pharmacol 21*.599-603, 1981 **3.** Iber FL, Baum RA. *J Clin Pharmacol 21*.697-700, 1981. **4.** Henning R, Lundvall O: *Eur J Clin Pharmacol 6* 224-227, 1973. **5.** Physicians' Desk Reference, 40th ed. Oradell, NJ, Medical Economics Company, 1986, pp 939, 1480. **6.** Pentikainen PJ, *et al: Br J Clin Pharmacol 4*.39-44, 1977. **7.** *Losix, A Review* Somerville, NJ, Hoechst-Roussel Pharmaceuticals, Inc., 1980

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WARNINGS: Dose should be adjusted to patient's needs Excessive doses or too frequent administration can lead to profound water loss, electrolyte depletion, dehydration, reduction in blood volume and circulatory collapse with the possibility of vascular thrombosis and embolism, particularly in elderly patients
Prevention of hypokalemia requires particular attention in patients receiving digitalis and diuretics for congestive heart failure, hepatic cirrhosis and ascites, states of aldosterone excess with normal renal function, potassium-losing nephropathy, certain diarrheal states, or other states where hypokalemia is thought to represent particular added risk to the patients
In patients with hepatic cirrhosis and ascites, sudden alterations of electrolyte balance may precipitate hepatic encephalopathy and coma. Treatment in such patients is best initiated in the hospital with small doses and careful monitoring of the patient's clinical status and electrolyte balance Supplemental potassium and/or spironolactone may prevent hypokalemia and metabolic alkalosis in these patients
In cats, dogs and guinea pigs, Bumex has been shown to produce ototoxicity Since Bumex is about 40 to 60 times as potent as furosemide, it is anticipated that blood levels necessary to produce ototoxicity will rarely be achieved The potential for ototoxicity increases with intravenous therapy, especially at high doses.
Patients allergic to sulfonamides may show hypersensitivity to Bumex
PRECAUTIONS: Measure serum potassium periodically and add potassium supplements or potassium-sparing diuretics, if necessary Periodic determinations of other electrolytes are advised in patients treated with high doses or for prolonged periods, particularly in those on low salt diets
Hyperuricemia may occur. Reversible elevations of the BUN and creatinine may occur, especially with dehydration and in patients with renal insufficiency Bumex may increase urinary calcium excretion.
Possibility of effect on glucose metabolism exists Periodic determinations of blood sugar should be done, particularly in patients with diabetes or suspected latent diabetes.
Patients should be observed regularly for possible occurrence of blood dyscrasias, liver damage or idiosyncratic reactions.
Especially in presence of impaired renal function, use of parenterally administered Bumex should be avoided in patients to whom aminoglycoside antibiotics are also being given, except in life-threatening conditions.
Drugs with nephrotoxic potential and bumetanide should not be administered simultaneously
Since lithium reduces renal clearance and adds a high risk of lithium toxicity, it should not be given with diuretics
Probenecid should not be administered concurrently with Bumex
Concurrent therapy with indomethacin not recommended
Bumex may potentiate the effects of antihypertensive drugs, necessitating reduction in dosage.
Interaction studies in humans have shown no effect on digoxin blood levels
Interaction studies in humans have shown Bumex to have no effect on warfarin metabolism or on plasma prothrombin activity
Pregnancy Bumex should be given to a pregnant woman only if the potential benefit justifies the potential risk to the fetus
Bumetanide may be excreted in breast milk
Pediatric Use Safety and effectiveness below age 18 not established
ADVERSE REACTIONS: Muscle cramps, dizziness, hypotension, headache and nausea, and encephalopathy (in patients with preexisting liver disease).
Less frequent clinical adverse reactions are weakness, impaired hearing, rash, pruritus, hives, electrocardiogram changes, abdominal pain, arthritic pain, musculoskeletal pain and vomiting
Other clinical adverse reactions are vertigo, chest pain, ear discomfort, fatigue, dehydration, sweating, hyperventilation, dry mouth, upset stomach, renal failure, asterixis, itching, nipple tenderness, diarrhea, premature ejaculation and difficulty maintaining an erection.
Laboratory abnormalities reported are hyperuricemia, azotemia, hyperglycemia, increased serum creatinine, hypochloremia, hypokalemia, hyponatremia, and variations in CO_2 content, bicarbonate, phosphorus and calcium Although manifestations of the pharmacologic action of Bumex, these conditions may become more pronounced by intensive therapy
Diuresis induced by Bumex may also rarely be accompanied by changes in LDH, total serum bilirubin, serum proteins, SGOT, SGPT, alkaline phosphatase, cholesterol, creatinine clearance, deviations in hemoglobin, prothrombin time, hematocrit, platelet counts and differential counts Increases in urinary glucose and urinary protein have also been seen.
DOSAGE AND ADMINISTRATION:
Oral Administration: The usual total daily dosage is 0 5 to 2 0 mg and in most patients is given as a single dose.
Parenteral Administration: Administer to patients (IV or IM) with GI absorption problem or who cannot take oral The usual initial dose is 0 5 to 1 mg given over 1 to 2 minutes If insufficient response, a second or third dose may be given at 2 to 3 hour intervals up to a maximum of 10 mg a day
HOW SUPPLIED: *Tablets,* 0 5 mg (light green), 1 mg (yellow) and 2 mg (peach), bottles of 100 and 500, Prescription Paks of 30, Tel-E-Dose® cartons of 100 Imprint on tablets: 0 5 mg—ROCHE BUMEX 0 5, 1 mg—ROCHE BUMEX 1; 2 mg—ROCHE BUMEX 2
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medicalegal brief

Risk Management in Practice
Maintaining Defensible Medical Records

MMIE Risk Management Committee
Paul S. Sanders, M.D.

Components of a Defensible Hospital Chart

Medical professionals regard the hospital chart as an important aid in providing proper and adequate treatment. Physicians rely on notes by consultants, nurses, and others who co-treat patients. Serious injury to the patient is avoided when the chart is current and reflects the patient's progress, or lack of it, while hospitalized. In addition, a complete, accurate, and objective medical record offers a solid foundation for defending the hospital, doctors, and nurses against allegations of negligence, improper treatment, or omissions in care. An incomplete or inaccurate record enables the plaintiff's attorney to challenge verbal testimony and to create doubt in the minds of jurors. A poor medical record may encourage the attorney to pursue a malpractice case that seems otherwise defensible. The less precise, the more subjective and incomplete the notes are, the better chance the plaintiff's attorney has to convince a jury to believe his client rather than the defendants.

Contents and Style of the Chart

Four essential characteristics of a good hospital medical chart are: completeness, objectivity, consistency, and accuracy.

The completeness of the chart is important to protect the patient from injury during hospitalization. And because the chart may be used in litigation for personal injury, workers' compensation, child custody, and employment disputes, as well as in malpractice actions, the chart's accuracy and objectivity can also benefit the patient in a nonmedical forum. The consistency and accuracy of the information recorded by physicians and nurses may be factors in determining whether a patient can obtain insurance, keep a job, qualify for a new job, or receive disability ratings.

The medical chart that best protects the patient from injury and provides a solid foundation in the defense of a malpractice claim includes the following:

■ **Admitting history:** The admitting history should objectively identify the patient's complaints, including the duration of symptoms or illness. Allergies and previous reactions to medicine, anesthetic agents, or treatment should be noted. If history is provided by someone other than the patient, the historian should be identified. A distinction should be made between a patient's complaints and the physician's exam findings. During hospitalization, some of the admitting history might prove to be inaccurate. Significant changes in history or in the patient's revision or revocation of consent should be prominently noted in the chart.

■ **Physician's orders:** Clear, concise orders facilitate communication between physicians and nurses. Specific orders prevent errors and avoid delays in compliance. Instead of the order "Check neuro signs," the physician should indicate how often the check should be made and what findings should be reported. A vague order such as "Call me if problems develop" may result in frequent and unnecessary calls to the physician. Orders should state what types of problems require notice to the physician; e.g., increase in temperature (how much?), changes in sensorium, reactions to medication, changes in fluid output (how much?), and the like.

■ **Progress notes:** Physicians' progress notes should be meaningful and objective. Many physicians have adopted the "SOAP" format for progress notes which prompts a complete entry. S = Subjective data: how the patient says he or she feels and his or her complaints; O = Objective findings the physician observes or finds on exam; A = Assessment of the objective findings and the patient's subjective complaints; P = Plans for further treatment. Other charting formats are equally acceptable when they provide sufficient information to assist others who co-treat the patient and adequately document the patient's course. A progress note that says "No problems" does not identify what actions (exam or discussion) occurred during the physician's visit. A narrative progress note should make reference to relevant aspects of the patient's case. For example, post-op notes might mention wound condition, drainage, and the absence of signs of complications. Progress notes should be dated and timed.

■ **Operative reports and discharge summaries:** Timely dictation of operative reports and discharge summaries is essential. A report dictated long after a complication has occurred may be regarded as self-serving and not reflective of the situation at the time of surgery or

(continued on page 473)

letters to the editor

The 'New' *Minnesota Medicine*

As I opened up the May issue of *Minnesota Medicine*, I was dismayed to see that the journal was going to change its focus from clinical and scientific matters to "governmental, social, and competitive factors that affect physicians."

It is inconceivable to me how this will improve the utility of *Minnesota Medicine* for the majority of its readers, and I feel it is a significant mistake. Please put me on record as opposing this change and being desirous of the Board of Trustees changing its mind and returning to a *Minnesota Medicine* that once again will focus on what physicians should be most interested in — clinical and scientific matters.

Mark H. Brakke, M.D.
Coon Rapids Medical Center
Coon Rapids, MN

Coronary Artery Bypass Surgery in the Elderly

During the past decade, coronary artery bypass surgery (CABS) has progressed from an experimental stage to a widespread acceptance by the medical community. The operation, which previously carried a substantial risk, is now routinely offered to patients. This has raised the important question of whether or not elderly patients (over 65 years of age) face an unacceptable risk undergoing coronary bypass surgery.

We reviewed 748 elderly patients (530 male and 218 female) who were operated upon during a five-year period. Their ages ranged from 65 to 87 years (average age 68 years). This group of elderly patients composed about 30% of the total number of CABS done during the same period, and over the time of the study we noted a progressive increase in the percentage of elderly patients. Our study indicates CABS in elderly can be performed with an acceptable operative mortality risk of 3.7% and late mortality risk of 5% (mean follow-up of 34 months). CABS also led to an encouraging symptomatic improvement in 90% of the patients. Our conclusion is CABS should be recommended to individuals meeting the usual preoperative criteria, and reservation should not be based solely on a patient's age. Age *per se* should not be considered a contraindication to CABS.

The immediate preoperative status of the 748 patients included 269 presenting with exertional angina, 284 with resting angina, 12 with acute myocardial infarction, and 28 with an intra-aortic balloon inserted prior to surgery. Twenty-one patients had redo CABS and 11 had concomitant carotid endarterectomy. The primary indications for surgery were life-threatening anatomical lesions and incapacitating symptoms for which the patients did not respond to medical therapy. Some of the risk factors included diabetes mellitus (14%), smokers (17%), ex-smokers (28%), and family histories (43%). Other risk factors were hypertension (48%) hyperlipidemia (17%), and obesity (14%). Still other patients had peripheral vascular disease (6%), symptomatic carotid bruits (2%), renal insufficiencies (14%), and chronic obstructive lung disease (16%).

Coronary angiography was performed on all of the 748 patients and revealed single vessel disease in about 10%, double vessel disease in nearly 12%, and triple vessel disease in nearly 78%. A little more than one-third of all patients had left main disease. Twenty-four patients had an ejection fraction between 10% and 29%, 153 between 30% and 49%, 289 between 50% and 69%, and 195 higher than 70%. Complete vascularization was accomplished in about 90% of the patients.

Postoperative complications included 11 patients with minor and nonpermanent strokes (1.5%), 47 patients had perioperative myocardial infarction (6.3%), seven patients (1%) had a long endotracheal intubation (>7 days), and eight had pneumonia (1%). Twenty-five patients (3%) had renal failure and two of them required dialysis. Twenty-one patients (3%) had postoperative bleeding requiring reoperation. Three patients developed sepsis, 21 patients (3%) had leg wound infection, and three patients had chest wound infection without mediastinitis.

All of the 720 patients who left the hospital were followed. Thirty-eight of these patients died (5%), and we were unable to contact eight patients. The 674 patients contacted (average age 72 years) felt that surgery had improved their general medical condition. Over 75% reported that they were able to perform work or exercise much better than prior to surgery. Forty-five percent of the patients reported hospitalization later for various other problems.

Eighty-two percent of the patients were angina free, and 18% had recurring angina but responded well to medical management. Nineteen patients (3%) had heart attacks, six of these patients died; 30 patients had strokes (4.5%), and two of these patients died. Seven patients died from ongoing atherosclerosis, and one patient underwent a second CABS elsewhere.

It appears from our survey that a reluctance to advise elderly patients to undergo CABS unless "it is absolutely necessary" may not serve the elderly patient as well as a more aggressive surgical approach.

K. V. Arom, M.D.
T. E. Kersten, M.D.
W. F. Northrup, III, M.D.
W. G. Lindsay, M.D.
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Minneapolis Heart Institute
Minneapolis, MN

Medicalegal brief cont.

discharge. Physicians who follow a patient after hospitalization are better able to assess the case when operative reports and discharge summaries are available. Before signing any dictated report, fill in blanks by the typist and correct errors in transcription. Initial all corrections you make.

Note: Articles in this series are not legal advice. Readers should obtain specific legal advice from a qualified attorney.

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Fall-Spring Conference Schedule

Mark your calendar now for these upcoming conferences:

1987	
October 9	Chemical Exposures: Emergency Response & Management, St. Paul
October 22-24	Fourth Annual Trauma Course, St. Paul
November 6	Chemical Exposures: Emergency Response & Management, St. Paul
November 6-7	Communication & Relationship Patterns Between Mothers and Daughters, St. Paul
November 12-14	Clinical Strategies in Primary Care, St. Paul
November 19-20	CNS Disease and Trauma, St. Paul
December 3-5	Annual Cardiopulmonary Medicine Update, St. Paul
1988	
February 18-19	Current Concepts in Perinatal Medicine, St. Paul
March 2-4	Sixth Annual Critical Care Conference, St. Paul
March 17-18	Family Practice Today, St. Paul
March 25	Ninth Annual Occupational Medicine Update, St. Paul
April 7-8	Ob/Gyn Update, St. Paul

Information and registration: Continuing Medical Education, St. Paul-Ramsey Medical Center,
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CME

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CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

AUGUST 1987

18 **Urology CME**, Mesabi Regional Medical Center, Hibbing; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-25 **Queen Elizabeth 2 and London — Travel Medical Seminar Program** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

AUG 22-SEPT 3 **Midnight Sun Express and Alaska Passage — Travel Medical Seminar Program** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

28-29 **Medical Directors CME**, University of Minnesota Medical School; Mayo Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

SEPTEMBER 1987

10-11 **Hospital Nutrition Support CME**, University of Minnesota Medical School; Holiday Inn Downtown, 1313 Nicollet Avenue, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-11 **Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies** Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, 2525 Chicago Avenue South, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, Medical Education Coordinator, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

10-12 **Teaching Geriatric Medicine CME**, University of Minnesota Medical School; Radisson University Hotel, 615 Washington Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-25 **Passage to India and Nepal** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

14-25 **Fifth Annual Occupational Health and Safety Institute** Midwest Center for Occupational Health and Safety; Earle Brown Center, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

16 **Ear, Nose & Throat — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-18 **OB/GYN Annual Autumn Seminar CME**, University of Minnesota Medical School; Hyatt Regency Hotel, 1300 Nicollet Mall, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-19 **Tenth Annual Trauma and Critical Care Seminar** Hennepin County Medical Center; HCMC, 701 Park Avenue South, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 347-2075.

18 **Northwestern Pediatric Society's 75th Anniversary Scientific Meeting** Northwestern Pediatric Society; Thunderbird Motel and Convention Center, Bloomington, Minnesota. CONTACT: M. Nammacher, M.D., 6845 Lee Avenue North, Brooklyn Center, Minnesota 55429; (612) 569-0300.

18 **Primary Care Management of Low Back Pain** Abbott Northwestern Hospital; The Saint Paul Hotel, St. Paul, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

18-19 **Adolescent Medicine CME**, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

21-25 **Radiology 1987: Chest-Cardiovascular CME**, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

24 **Advanced Cardiac Life Support Certification Course** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

25 **Problems in Family Practice** The Duluth Clinic, Ltd., Fitger's Spirit of the North Theatre, Duluth, Minnesota. CONTACT: James G. Brueggmann, M.D., The Duluth Clinic, Ltd., 400 East Third Street, Duluth, Minnesota 55805.

25-26 **Basic Gyn Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

SEPT 28-OCT 1 **Colon and Rectal Surgery** CME, University of Minnesota Medical School; Mayo Memorial Auditorium, 420 Delaware Street SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

OCTOBER 1987

1-3 **Heart Assist Devices and Heart Replacement** Abbott Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

4-16 **Orient Adventure** North Central Medical Conference; The Orient. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

7-9 **Internal Medicine Review** CME, University of Minnesota Medical School; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

9-10 **Third Annual Knapp Rehabilitation Center Conference on Head Trauma Rehabilitation** Metropolitan Medical Center and Hennepin County Medical Center; Pillsbury Auditorium, Minneapolis, Minnesota. CONTACT: Colleen Sackrider, Knapp Rehabilitation, 900 South 8th Street, Minneapolis, Minnesota 55404; (612) 347-3950.

12-16 **Aspiration Cytology** CME, University of Minnesota Medical School, Minneapolis, Minnesota; Bell Institute of Pathology, 2-116 Moos T, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

12-26 **The Danube River Cruise** North Central Medical Conference; Vienna to Instanbul. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

16-17 **Advanced Gyn Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

20 **General Surgery-CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (612) 262-4881.

22-24 **National Behavioral Pediatrics Conference** CME, University of Minnesota Medical School; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

23 **Front Line Neurology** Abbott Northwestern Hospital; Marriott City Center, Minneapolis, Minnesota. CONTACT: Tim Schuh, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

NOVEMBER 1987

6 **E.T. Bell Pathology Symposium** CME, University of Minnesota Medical School; Holiday Inn Crowne Plaza, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

6 **Advanced Concepts in Cardiac Pacing** Abbott Northwestern Hospital; Radisson Plaza Hotel, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

6-7 **Nutrition in the 80s** CME, University of Minnesota Medical School; Earle Brown Continuing Education Center, St. Paul Campus, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

7-8 **Minnesota Society of Clinical Pathologists Fall Tumor Seminar** Minnesota Society of Clinical Pathologists; Crown Plaza Hotel. CONTACT: Teri Davids, MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

13-14 **Urological Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

14 **Minnesota Society of Anesthesiologists Fall Scientific Program** Minnesota Society of Anesthesiologists; L'Hotel Sofitel, Bloomington, Minnesota. CONTACT: Doug Koentop, M.D., University of Minnesota, Anesthesiology Department, Minneapolis, Minnesota 55455; (612) 624-6997.

20-21 **Primary Care Symposium** Methodist Hospital Family Medicine Department; Registry Hotel, Bloomington, Minnesota. CONTACT: David Williams, M.D., 6500 Excelsior Boulevard, St. Louis Park, Minnesota 55440; (612) 932-5190.

DECEMBER 1987

15 **Pediatrics — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

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Wanted: Family Practitioner, Internal Medicine: Central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (813), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Attention Physicians: Mount Sinai Hospital in Minneapolis, Minnesota, currently has several openings for part-time positions in the Emergency Room. Interested physicians should contact Karen DeGrio, Mount Sinai Hospital, 2215 Park Avenue South, Minneapolis, Minnesota 55404; (612) 872-5735. 1-8/87

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Wausau Medical Center seeks BC/BE associates in Anesthesiology, Dermatology, Family Practice, Infectious Disease, Internal Medicine, Obstetrics/Gynecology, Rheumatology, and Walk-In. New facility situated across the street from new hospital. Full partnership in three years. Easy access to lakes, woods, and mountains. Write (include CV) to: D.K. Aughenbaugh, M.D., Medical Director, Wausau Medical Center, 2727 Plaza Drive, Wausau, Wisconsin 54401. 5-12/87

Physiatrist: Our current, part-time, physiatrist is searching for an American-trained, board certified or eligible physiatrist to become the medical director of our Rehabilitation Center. The position will also provide a private practice opportunity if desired. St. Cloud Hospital is a private, Catholic, nonprofit 489-bed hospital in central Minnesota, 70 miles northwest of Minneapolis/St. Paul, with a 150-member multispecialty medical staff. St. Cloud Hospital is a

Level II trauma and emergency facility. The rehabilitation facility has a 10-county (400,000 population) referral area. The present rehabilitation unit is DRG exempt, modern, fully equipped, staffed with 50 professionals (including PT, OT, speech pathologists, TR, rehab nurse specialists, clinical psychologists, and social workers) with an outstanding 16-year history and is actively supported by the medical staff. St. Cloud (pop 50,000) has three area colleges and an excellent independent and parochial school system. Easy one-hour freeway driving to Minneapolis/St. Paul provides outstanding cultural opportunities. St. Cloud is an ideal location for private practice and raising a family. Respond with CV or call collect to: R.J. Cumming, M.D., Director of Medical Affairs, St. Cloud Hospital, 1406 North 6th Avenue, St. Cloud, Minnesota 56301; (612) 255-5626. *3-10/89

Pediatrician to join existing two-person practice at the 23-physician multispecialty Winona Clinic, Ltd., in Winona, Minnesota. Located in the beautiful Mississippi River Valley of southeast Minnesota. The community, with a 40,000 population trade area, is the host of three colleges and a diverse industrial base. Send CV to: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-10/87

Family Practice Opportunity: A western Iowa community of 6,700 with a 92-bed hospital has a need for a family practitioner. Assistance is available from the hospital and the medical community. Call or write: T.R. Magden, Administrator, Crawford County Memorial Hospital, Denison, Iowa 51442; (712) 263-5021. 1-8/87

Family Practice: One or more family practice physicians needed in western Minneapolis suburbs. Several practice opportunities are becoming available in progressive health-care network affiliated with major west suburban medical facility. Contact: MHC Associates, PO Box 650, Minneapolis, Minnesota 55440; or call John Herman, (612) 932-5010. 3-10/87

Pediatricians: Ramsey Clinic, A University-affiliated multispecialty clinic located in St. Paul, Minnesota, is seeking two board certified or board eligible pediatricians to join our 215-physician group practice. Through our association with St. Paul-Ramsey Medical Center, they will be providing clinical services on inpatient units and in a large-volume ambulatory clinic. Teaching, education, and research opportunities are available, as successful candidates will be eligible for academic appointment at the University of Minnesota. Salary commensurate with experience and excellent fringe benefits are offered as part of these opportunities. For further information and confidential consideration, send your CV in confidence to: Homer D. Venters, M.D., Chairman, Department of Pediatrics, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101. EOE *1-8/87

OB/GYN: Interstate Medical Center of Red Wing, Minnesota, is seeking BE/BC OB/GYN surgeon to join an established three-physician OB/GYN department. Guaranteed salary with excellent fringe benefits. Contact: John Walsh, M.D., Interstate Medical Center, PO Box 54, Red Wing, Minnesota 55066. 4-11/87

General Psychiatrist: Opportunity for private practice; adult and some adolescence. BE and BC; Neurology and psychiatry specialty; Minneapolis, Minnesota. Send CV to: 1535 Medical Arts Building, 825 Nicollet Mall, Minneapolis, Minnesota 55402. 1-8/87

Family Practice: Two-man clinic with two locations in south Minneapolis seeks a third physician to join them in a caring, warm, full-range family practice. Must be board certified or board eligible. OB is optional. Contact: L. Timothy Knutson, Medical Resource Group, Inc., 2550 University Avenue West, Suite 239N, St. Paul, Minnesota 55114; (612) 647-0003. 1-8/87

Medical Office Downtown St. Paul adjacent to St. Joseph's Hospital. Furnished and computer $650 per month. (612) 222-1133. 3-10/87

St. Paul: Board certified family physician wanted as fifth physician in progressive, nonprofit neighborhood clinic also serving metro-wide Hispanic community. Well-equipped new clinic facility. Competitive salary and fringes. Bilingual (Spanish) preferred or willingness to learn. Obstetrics included. Starting date July 1988 or sooner if possible. Contact: Dr. Bruce Richardson at (612) 222-1816 or write West Side Community Health Center, 153 Concord Street, St. Paul, Minnesota 55107. 3-10/87

OIAL Large General Practice and Clinic for Sale by GP preparing for retirement. Practice is part of a progressive and rapidly expanding community located in central Minnesota near excellent winter and summer recreation. Current clinic grosses over $500,000 annually, is expandable and equipped with surgery, X-ray, lab, and set up for pharmacy. Fee-for-service and growing! Malpractice insurance not a serious problem. Computerized, excellent staff. Great potential for aggressive GPs, FPs, internists, or surgeons. Excellent hopsital one mile. Write: Minnesota Medicine (814), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 3-10/87

Family Physician: Family Practice clinic seeks BE/BC family practitioner to join established practice in Zumbrota, Minnesota. Outstanding salary and benefits, including association with larger multispecialty clinic. Send CV and references to: Robert R. Thompson, M.D., 267 West Fifth Street, Zumbrota, Minnesota 55992. 3-10/87

Medical Writer: Experienced freelance medical writer available to ghostwrite, edit or consult on journal submissions, grants, clinical summaries, research results, and internal newsletters. Reasonable fees. Therese Ensley, 3501 14th Avenue South #5, Minneapolis, Minnesota 55407-2231; (612) 722-0882. (R)

Internist needed to join well-established practice in a community of 45,000. First-year salary guarantee with excellent fringe benefits. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. (R)

Family Practice, St. Cloud, Minnesota: The St. Cloud Medical Group, a multispecialty group made up of 23 physicians is seeking an additional full-time, board eligible and/or board certified family practitioner to join its department of ten other family physicians. The St. Cloud Medical Group is a young group of physicians that offers a family practitioner a quality opportunity in the way of call schedules and financial rewards. The facility is a very progressive and growing medical force in Central Minnesota and will offer the new family practitioner and his or her family a quality opportunity in one of the fastest growing communities in the state of Minnesota. The facility also has two affiliate branches in Clearwater and Cold Spring, Minnesota. St. Cloud, with a population of over 70,000, is home to three major colleges and offers many cultural and educational opportunities to the physician and his or her family members. The St. Cloud community is recognized for its fine public and parochial school systems along with its family-oriented community activities. If interested in joining a progressive and growing medical group in Central Minnesota, please contact and/or call collect: LaRue V. Dahlquist, M.D., President, and/or Daryl G. Mathews, Administrator, at (612) 251-8181, or send your CV to the St. Cloud Medical Group, PA, 1301 West St. Germain, St. Cloud, Minnesota 56301. 4-10/87

Family Physician wanted to join four others in rapidly expanding North Ridge Family Medicine Clinic. New clinic facility in North Mankato. Mankato population 40,000+, opportunity for partnership after one year. Call or write: Tony Giefer, M.D., 1695 LorRay Drive, North Mankato, Minnesota 56001; (507) 387-8231. (R)

Bemidji, Minnesota: Immediate opportunity for an additional Board Certified/Eligible orthopedic surgeon to join young 26-physician multispecialty group practice located in Northern Minnesota. Clinic adjacent to modern, well-staffed and equipped hospital. Competitive salary guarantee plus incentive first year. Excellent benefits and educational leave. An excellent opportunity for a physician to enjoy the practice of orthopedics in the center of hunting, fishing, and clean air. Please respond with CV to: Thomas E. Miller, M.D., or C.C. Lowery, Administrator, Bemidji Clinic, Ltd., 1233 34th Street NW, Bemidji, Minnesota 56601. (R)

Physician Needed to provide primary care. Position is with a 637-bed regional treatment center that provides treatment for individuals with chemical dependency problems/psychiatric and developmental disabilities. Competitive salary with excellent fringes including paid malpractice insurance. Limited call. Located 90 miles west of Minneapolis/St. Paul with abundant outdoor recreational opportunities. Excellent schools. Salary to 65K. Call or write (include CV and references): Larry Olson, M.D., Medical Director, Willmar Regional Treatment Center, Willmar, Minnesota 56201; (612) 231-5100. An Equal Opportunity Employer. 2-8/87

Galesville, Wisconsin — Family Practice: Immediate family practice opportunity available in rural community—population 1,300 with a service area of about 8,000. Newly remodelled and fully equipped branch office is part of a 51-physician multispecialty group with 16 family physicians. Diverse subspecialty backup and on-call coverage are provided. 23 miles from 350-bed, full-service hospital in La Crosse. Clinic offers competitive compensation package, including first-year guarantee and excellent benefits. Galesville is nestled amidst the picturesque bluffs of southwestern Wisconsin. Year-round recreational resources nearby. Contact P.S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 South 10th Street, La Crosse, Wisconsin 54601. Phone (608) 782-9760. 2-8/87

La Crosse, Wisconsin — Immediate need for BE/BC general pediatrician. 51-physician multispecialty group, three pediatricians. 350-bed hospital adjacent to clinic. Competitive first-year compensation, excellent benefits. City of 50,000 in beautiful Mississippi River Valley. Contact P.S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 South 10th Street, La Crosse, Wisconsin 54601. Phone (608) 782-9760. 3-9/87

Neonatologist — Member of 28-physician multispecialty group in North Dakota. 250-bed hospital with fully equipped Level III unit. Excellent salary plus bonus. Contact: Jean Malkasian, 250 Regency Court, Waukesha, Wisconsin 53186; or call (414) 785-6500 collect. 2-8/87

Quality Lake Home in central Minnesota. Only 2-hour drive from Minneapolis. Custom walkout rambler on 1 1/3 acres with over 3000 sq. ft. of finished living area. 5 bdrms, 3 baths, custom oak woodwork throughout. Dual heating system with off-peak electric and groundwater heat exchanger for heat and central air conditioning. Two decks overlooking 130 ft. of lakeshore. Good fishing and other water sports. Double attached garage plus separate 20'x30'x12' insulated and heated garage with attached horse stable for two horses. Beautiful tranquil country setting. $170,000. Call (612) 573-2517. 3-9/87

Clinic Manager Seeking Position with progressive growth-oriented physician group. Ten years' experience including: clinic management, hospital, and consulting. Expert in computer systems, personnel management, benefits plans, hospital relations, and health plan negotiations. Looking for new challenges. For detailed resume and salary history please send a description of your group to: Minnesota Medicine (812), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Urologist— VA Medical Center, Lincoln, Nebraska. Seeking board certified or board eligible urologist for progressive, affiliated 180-bed medical center. Center is affiliated with University of Nebraska for urology residency program. Salary and bonus pay commensurate with training and experience. Licensure any state. Must meet English proficiency requirement. Allowable moving expenses payable. Write or call: (402) 489-3802, Ext. 229. Chief, Surgical Service, VA Medical Center, 600 South 70th Street, Lincoln, Nebraska 68510. Equal Opportunity Employer. *3-9/87

Internist and Family Physician: Fourteen-physician, multispecialty clinic located 100 miles south of Minneapolis-St. Paul is seeking an internal medicine and a family practice physician. Excellent practice opportunities in a community of 25,000. Modern, well-equipped clinic with on-site lab and diagnostic X-ray. Attractive guaranteed salary, excellent benefits and early partnership. Contact: Richard Graber, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. 3-9/87

Certified Audiologist: Aspen Medical Group, a large multispecialty medical group located throughout the Twin Cities, currently has an opening for a certified audiologist. The person will assist our two otolaryngologists located in Bloomington and Bandana Square in St. Paul. The individual we select to work on a contract basis will be certified and will embelish our commitment to provide personal medical care. The position will initially be 8 hours per week and will be flexible based on schedules. Qualified candidates should send resume to: Director of Human Resources, ASPEN MEDICAL GROUP, 1295 Bandana Boulevard North, Suite 3310, St. Paul, Minnesota 55108. 2-8/87

Arizona-Based Physician Recruitment firm has quality opportunities coast-to-coast. Available positions in most primary care and surgical specialties to include Ob/Gyn, Orthopedics, ER, and ENT. "Quality Physicians for Quality Clients since 1972." Call (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

Family Practice and Internal Medicine: Huron Clinic Foundation, Limited is a multispecialty group serving a trade area of approximately 50,000, has a practice situation where several members of the staff are near retirement and a ready practice would be available. A new member can start with NO CASH Investment, first-year salary guarantee, and many benefits, including malpractice insurance and a pension plan. The clinic is located next to a 120-bed JCAH-accredited regional hospital with excellent diagnostic and care capabilities. The clinic is currently pressed for a Board Certified/Board Eligible physician to take over a practice. Call collect (605) 352-8691 or contact any staff member or the clinic manager at the Huron Clinic, PO Box 822, Huron, South Dakota 57350. *6-10/87

Mork Clinic, a multispecialty group in Anoka, is looking for a family practitioner to join our staff. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 6-10/87

Orthopaedic Surgeon: Well-established solo Board Certified orthopaedic surgeon is looking for another BC/BE surgeon who wants to live in a smaller community and practice quality general orthopaedics. The Northern Pines Orthopaedic Clinic is a newly remodeled, 4000 sq. ft. facility with in-house X-ray and PT. Office located one mile from well-equipped JCAH-approved 100-bed hospital. Practice serves county of 40,000 and parts of three adjacent counties. Grand Rapids is located in the heart of Minnesota's four-season vacationland, offering nearby lakes, excellent boating, fishing, and hunting, two ski resorts, three golf courses, large YMCA, and more. The community has a solid industrial base and one of the better school systems in the state. If interested in an exceptional practice opportunity in a family-oriented community, send CV to: J.W. Burnett, M.D., Northern Pines Orthopaedic Clinic, 111 Golf Course Road, Grand Rapids, Minnesota 55744.(R)

Family Practice: to join group of 10 board-certified family physicians. Three offices located in northwest suburbs of Minneapolis. Guaranteed first-year salary plus excellent benefits. Contact: Diane Shuck, M.D., (612) 476-6776 or 537-8405; Marie Hanauska, 537-8475; or write 5810 42nd Avenue, Robbinsdale, Minnesota 55411. 6-9/87

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General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 6-9/87

St. Paul Internists, PA Has openings for a pulmonary intensivist and invasive cardiologist, immediately, June 1987, and June 1988. Please contact: Frank J. Indihar, M.D., FACP (612) 224-4737. (R)

Sathe & Associates Executive Search Firm is currently seeking physicians for positions locally and nationally. Explore new opportunities with a medical professional who is discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write: Liz Johnson: Sathe & Assocaiates, Inc., 5821 Cedar Lake Road, St. Louis Park, Minnesota 55416; (612) 546-2100 (R)

Family Practice Physician Needed: Established need for a family practice physician to join 7-man group in beautiful northwest Iowa. Modern 10,000 sq. ft. clinic building is next door to 72-bed JCAH-accredited county hospital. Unusually progressive community of 10,000 has economy far above the state average. Storm Lake offers 3,000-acre lake, 85 acres of park and recreation, and is home to Buena Vista College. One hour from Sioux City, and two hours from Omaha and Des Moines. Generous guarantee with immediate incentive plan, paid malpractice insurance, liberal vacation and seminar time, limited call requirements with seven other physicians, and no HMOs in the area. Contact: Darrell Pritchard, Manager, Buena Vista Clinic, PC, 620 Northwestern Drive, Storm Lake, Iowa, 50588. Call collect (712) 732-5030. (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30 bed acute and 86 bed long-term care facility with a clinic located next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minneseota 55072; (612) 245-2212. *(R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Canterbury Inn Bed & Breakfast: Rochester's unique alternative to hotel living. Victorian charm with modern comforts. Private baths, fireplace, central air conditioning, gourmet or special diet breakfast anytime, "tea-time" (wine, hors d'oeuvres, etc.) daily. Private, off-street parking, three blocks to Mayo Clinic and St. Mary's. A very special place for you, your colleagues, and your patients while in Rochester. $50/single, $60/double. 723 Second Street SE, Rochester, Minnesota 55902; (507) 289-5553. (R)

Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, general internal medicine or with subspecialty training in ear/nose/throat, orthopedic surgery and obstetrics/gynecology. Bemidji Clinic is a 25-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or H.J. Hoody, M.D., Medical Director; (218) 751-1280. (R)

BE/BC Family Practice, Internal Medicine, OB/GYN & Psychiatrist: Excellent opportunity to join a well-established, progressive, 15-physician multispecialty group (7 FP, 4 IM, 2 GS, 1 OB/GYN, 1 DERM) located in an economically sound community of 19,000 (drawing area of 30,000), 65 miles south of Twin Cities. Full membership after one year. One FP retiring in 1987. Competitive salary and fringe benefit package. Contact: Pat Greenwood, M.D., or Jim Wilkus, Administrator, 134 Southview, Owatonna, Minnesota 55060; (507) 451-1120. (R)

Downtown Office Space For Rent. Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553. (R)

FP/GP Locum Available for Work Lic. Minnesota, Wisconsin, SD, ND, Colorado, Utah, Missouri. Contact: Dr. Olin, Box 422, Excelsior, Minnesota 55331; (612) 475-9411. (R)

General Surgeon and Family Physician needed for busy five-physician practice. Guaranteed first-year salary with excellent benefits program. Located only 22 miles from Duluth on the beautiful North Shore of Lake Superior. Call collect: (218) 834-2171, or write Steve Bjorum, Executive Director, Community Health Center, 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Orthopedic Surgeon: An excellent opportunity for an orthopedic surgeon to join a single specialty four-man group that is expanding. Prefer hand or spine fellowship training but will consider general orthopedist. Clinic located within new 300-bed hospital complex. Community offers educational and recreational opportunities. Guaranteed salary and excellent fringe benefits. Send CV and letter of inquiry to: Clinic Coordinator, Bone & Joint Clinic, S.C., 425 Pine Ridge Boulevard, Suite 300, Wausau, Wisconsin 54401; (715) 842-3202. 3-8/87

Physicians Needed: Opportunities nationwide!! Call (612) 633-4990 or send CV to: Earl Czech, North Central Staff Services, Inc., 443 — 8th Street NW, St. Paul, Minnesota 55112. R

Pediatrician and Obstetrician/Gynecologist: BCBE to join growing Ob/Gyn-Pediatric practice in clinic one hour from Twin Cities metro area. Salary plus excellent benefit package leading to partnership. Send CV to: Women & Children's Medical Center, 1520 Northway Drive, St. Cloud, Minnesota 56301. 3-8/87

Family Practitioner: Board certified or eligible to join 11-physician, expanding multispecialty practice in northern Wisconsin. Clinic adjoins JCAH hospital. Rural location with abundant outdoor recreational opportunities, small four-year college. Excellent salary and benefits. Call collect (715) 532-6651 or send CV with names of references to: John Smylie, Administrator, Marshfield Clinic — Ladysmith Center, 906 College Avenue West, Ladysmith, Wisconsin 54848. 3-8/87

Internal Medicine Section: Multispecialty group of 71 physicians seeking internist with subspecialty in endocrinology and/or rheumatology. Some general medicine. Large referral area in lake region of West Central Minnesota. Competitive salaries, excellent pension, vacation, and sabbatical programs. Send CV to: Patricia D'Aquila, M.D., Willmar Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201, or call (612) 231-5000. 3-8/87

Rochester Minnesota, Family Medicine: Busy family practitioner with rapidly expanding practice desires BE/BC associate. Competitive salary and benefits. Newly equipped office with four exam rooms, lab, X-ray, and minor surgery. Good working relationship with Mayo Clinic. Outstanding cosmopolitan community. Quality lifestyle, excellent schools, four-year college. Many civic and cultural programs available for wide range of interest. Contact: Rochester Family Medicine Clinic, Fred D. Banfield, M.D., 40 SE 16th Street, Rochester, Minnesota 55904; (507) 288-0124. 3-8/87

Neurology, Hematology/Oncology, Rad. Oncology: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

Primary Care and Pulmonary: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

Family Practice, Minneapolis: BC/BE Family Practice Physicians needed to join the Family Practice Department of 270-physician multispecialty medical clinic in desirable Twin Cities area. Main center and branch office practices available. The clinic serves both fee-for-service and prepaid (HMO) patients. Salary and benefits are highly competitive. Send CV and letters to inquiry to: Milton Hanson, M.D., Park Nicollet Medical Center, 5000 West 39th Street, St. Louis Park, Minnesota 55416. *3-8/87

40-year-old Internist Seeks BE/BC Internist to provide locum tenens in this central Minnesota resort community. Beautiful lakes and expanding retirement area. New 162-bed hospital with all specialties. Offices in five-year-old medical office building. Write: Minnesota Medicine (807), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 4-9/87

Minneapolis — Seeks BC/BE Associates in Adult Psychiatry, Cardiology, Family Practice, Internal Medicine, Obstetrics/Gynecology. Practice quality medicine in a prepaid multispecialty setting located in one of America's leading metropolitan areas. Comprehensive benefits, excellent facilities, flexible compensation programs. For further information about joining the GROUP HEALTH medical staff, call Jerry Hess at (612) 623-8444 or write to: GROUP HEALTH, INC., Attn: Jerry Hess, 2829 University Avenue SE, Minneapolis, Minnesota 55414. 3-8/87

Family Practitioner: Marshfield Clinic — Durand Center is seeking a board certified/board eligible family practitioner to join another family practitioner in an established office-based practice in Durand, Wisconsin. Durand offers a rural location with abundant outdoor recreational opportunities located in scenic western Wisconsin. The Durand Center offers the family practitioner the autonomy of a private, primary care practice plus the financial and professional resources of Marshfield Clinic, a 250-physician multispecialty group. This physician would enjoy full hospital privileges at the local hospital in Durand. Excellent salary and fringe benefits. Please send CV to: Robert Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, WI 54449. Or you may call collect at (715) 387-5498. *3-8/87

Pediatrician: The St. Cloud Medical Group, a multispecialty physician group, is seeking an additional full-time board eligible and/or board certified pediatrician to share call in a practice with three other pediatricians. The Pediatric Department is very busy and has many referrals from a large family practice department and obstetrical department. The organization is a very progressive and growing medical force in central Minnesota and offers the new pediatrician and his or her family a quality opportunity. The facility has two affiliate branches that also assist the referral network for the Department of Pediatrics. St. Cloud, with a population of 70,000 is one of the fastest growing communities in Minnesota. It is home to three major colleges and provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in joining a progressive and growing medical group in central Minnesota that offers a quality compensation program along with fringe benefits, please contact Dr. Richard Hart and/or Daryl G. Mathews, Administrator, collect at (612) 251-8181, or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-9/87

Urgi-Care Physician: The St. Cloud Medical Group, a multispecialty physician group, is recruiting an Urgi-Care physician in St. Cloud, Minnesota. The physiician must be board certified and/or eligible in family practice and/or emergency medicine. The individual recruited into this position will not be required to take any evening or weekend call and will receive the benefits of association with one of the largest groups in central Minnesota. St. Cloud, with a population of 70,000 is one of the fastest growing communities in central Minnesota, and is home to three major colleges. St. Cloud's location provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in becoming an Urgi-Care physician in a progressive and growing medical group in St. Cloud, Minnesota, please contact either Dr. LaRue Dahlquist, President, or Daryl G. Mathews, Administrator, collect at (612) 251-8181, and/or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-9/87

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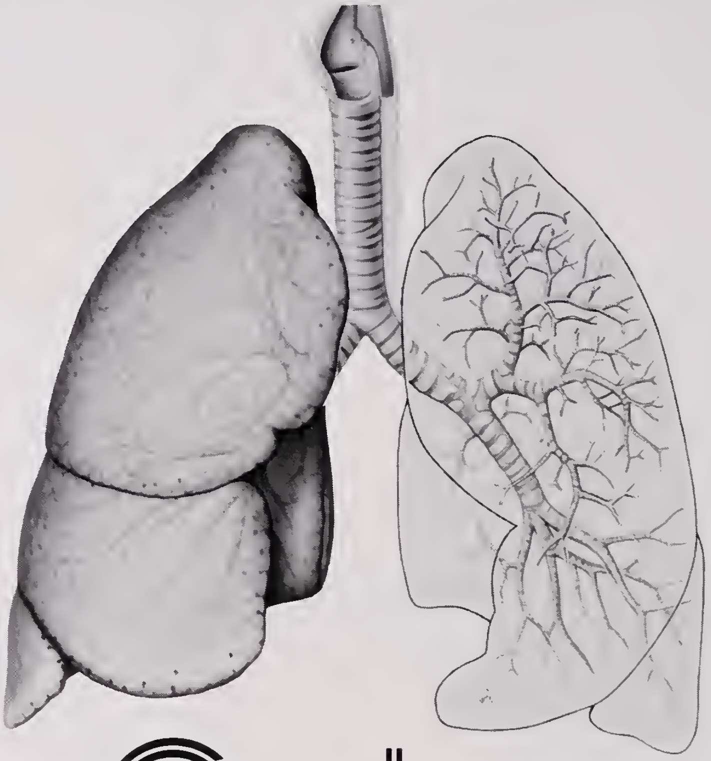

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Contraindication:
Known allergy to cephalosporins.

Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

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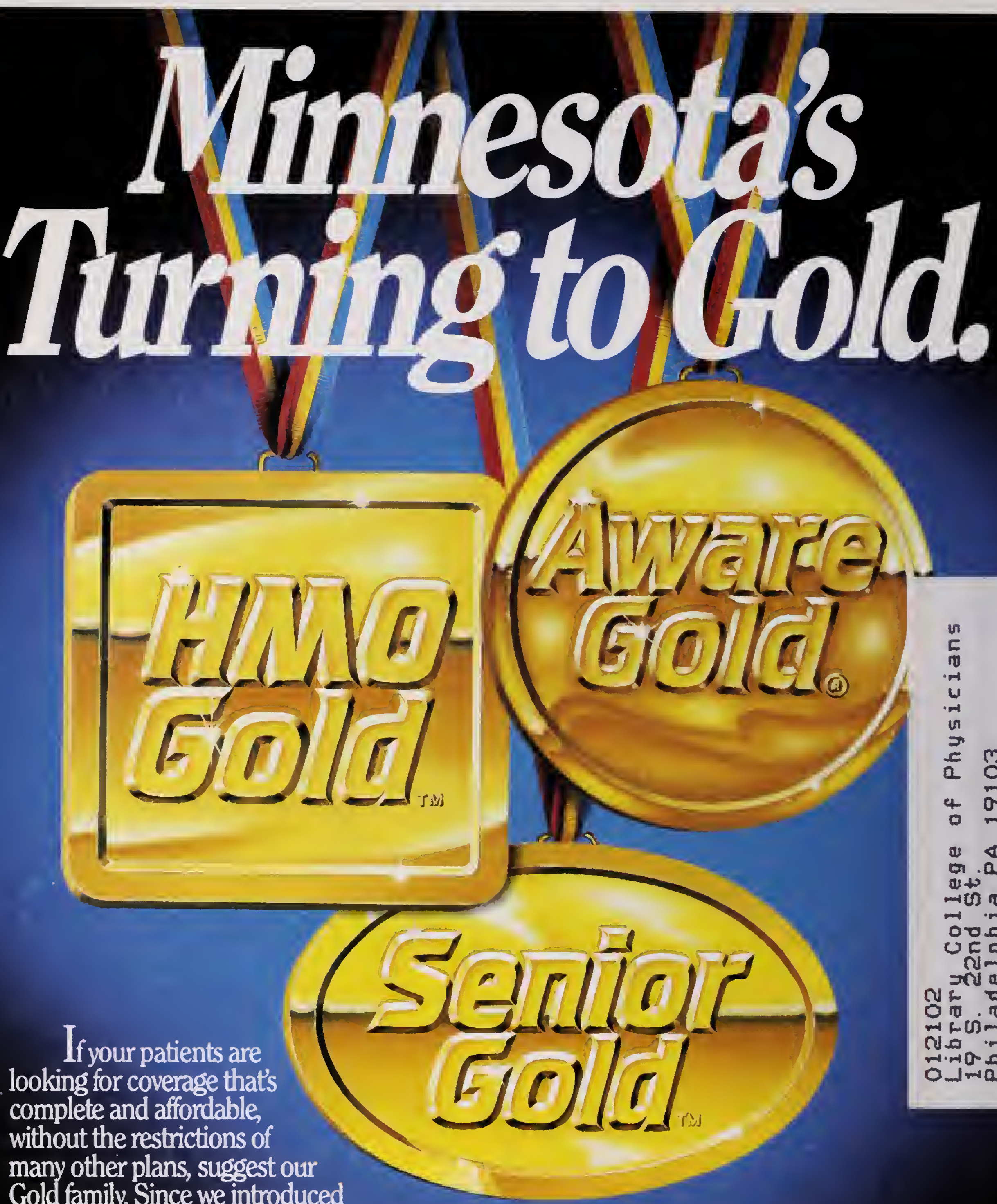

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Cover Photograph

Sunrise at Bayfield

Frank A. Lederle, M.D., assistant professor of medicine at the Minneapolis Veterans Administration Medical Center, took the cover photograph of the marina in Bayfield, Wisconsin. He used a Pentax MX with a 135 mm lens and Kodachrome 64 film.

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editor's notebook

The Corporate Transformation of Medicine in Minnesota: Minnesota's Health Care Successes

(And the Limits of Private and Government Care*)

Twenty-third in a series

Speakers who gather at posh resorts like this rarely touch upon organizations that succeed in a competitive environment. Instead, we movers and shakers and policymakers get lost in winds of words, cyclones of rhetoric about change, and other forms of theoretical hot air about prepaid care versus fee-for-service, solidarity versus pluralism, the market versus regulation, universality versus freedom of choice, and equality versus quality.

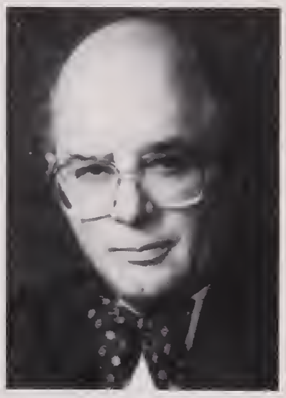
We forget that those health care organizations that have integrated physician cultures, that offer superior service to their customers, and that constantly innovate are expanding and becoming more profitable. That is why hospitals, medical centers, and clinics with long traditions and a "class-act," continue to do well.

The Mayo Clinic

Take the Mayo Clinic. This year Mayo had over $700 million in revenues and its highest profit ever. It cannot keep up with demand for services in its new satellites in Jacksonville and Scottsdale. Yet Mayo is an organization that practices the much-maligned fee-for-service medicine. This disciplined fee-for-service organization, with a high morale among physicians and a common purpose, can outperform any HMO in the country economically and in patient service. It already does. It practices its brand of medicine at 40% less cost than the U.S. as a whole.

The University of Minnesota

Or take the University of Minnesota medical center. Three years ago this venerable organization with the fourth largest U.S. medical school, was in the doldrums, losing market share and referral sources. The faculty decided to change itself from a series of fiefdoms held together only by grievances over parking, to a more tightly unified practice group with common purposes. It chose to pay more attention to the details of serving its patients and referring physicians, built a new hospital to please and better serve patients, and promptly started climbing back into the market.


Richard L. Reece, M.D.

Abbott Northwestern

This powerful hospital put together a carefully thought-out marketing plan for potential users, educated its medical staff to marketplace realities and to the nuts-and-bolts of quality, and sent its key medical and hospital people to Tom Peters' "Skunk Camps" to drill into them the importance of quality and attention to customers.

HealthOne

Or take HealthOne, a $400 million hospital holding company with 22% of the beds in the Twin Cities' health care marketplace. This organization has committed itself with a sizable portion of its budget to making physicians a tightly woven and tied-in part of the management structure. Furthermore, its executives know an integrated physician culture, and physicians who see tangible benefits of belonging to the organization will be its key to success.

No Joy in Twinsville

There is no joy in Twinsville as I step to bat before you today. Few of the players — patients, purchasers, providers, or HMO moneychangers — are rejoicing in the rigors of competition. Indeed, we seem to have more losers than winners.

Will this current chaos of change — this period of shakeout, consolidation, innovation, and survival of the fittest among capitalists — be the wave that crests by the year 2000?

Quality vs. Mediocrity

Not if we don't "buy right," i.e., shift patients to "quality providers," as judged by objective standards, warns Walter McClure of Minnesota. Instead, he says, the Relmans and Ginzbergs of the world will be right — we shall have the comforting and sometimes competent mediocrity of a government-regulated system to assure access, egalitarianism, equality, and the elusive virtue known as "fairness."

---

*From a talk, "Six Days in June: Surprising News From Minnesota — a Mature HMO Marketplace," June 19, 1987, The Broadmoor Hotel, Colorado Springs, Colorado.

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Future Trends

But realities keep overwhelming inequities on this troubled planet. I heard John Naisbitt speak recently at the opening of the Phillips Eye Institute in Minneapolis. Naisbitt, a Democrat, said the United States will continue to elect Republican presidents and Democratic legislators; entrepreneurialism in health care will continue with unabated vigor; and the social welfare state in the Western world will collapse under the weight of its own promises and expectations. Instead, a large middle class will emerge that will vote for its own economic self-interest.

Government vs. Privatized System

In this country, Naisbitt predicted, the national health care system is dead, Canadian or British style. The American people's perception of their own economic self-interest will not allow either system. Indeed, he added, Britain will lead the way toward a "privatized" health care system in western Europe.

He could be right; the June 13 edition of the *New York Times* contains these words:

"Britain's old bipolar political model — anchored at one end by a heavily unionized working class and at the other by a paternalistic ruling class — is dead. It has been replaced by a new model anchored at the center by a middle class that has learned with Mrs. Thatcher's active encouragement to vote for its own economic interest . . . what has buffaloed the opposition for three straight elections now has been Mrs. Thatcher's very un-British willingness to appeal to the voter's selfish interests."

The Norwegian View

I had breakfast recently with Leif Heloe, the past Minister of Health from Norway. He told me Norway is strongly considering "privatization" to relieve welfare state burdens and to serve as a government relief valve to assuage Norwegians demanding access to more health care of the technological and cosmetic kind. Norway, he said, can no longer pay for the health crisis brought on by the doctor glut, the technological imperative, rising expectations, and procedures that are blurring boundaries between medical and cosmetic care.

HMOs, or other "privatization schemes," he speculated, might be a more acceptable way of managing care — of achieving efficiencies, fostering pluralism, and giving freedom of choice. These were, I might add, very un-Scandinavian things to say.

My View — A Private-Public Partnership

HMOs, in my view, are just one model for the "privatization" of the future. They are too rigid, too alien, and too muscle-bound to please most consumers and most physicians. HMOs, or competing health plans, are but part of the future pluralistic health care landscape. In the Twin Cities, my section of the cosmos, HMOs of the Kaiser kind have crested. Other more attractive, more flexible, more imaginative, and more segmented options are replacing them. The HMOs themselves are creating these flexible options which most often take the form of PPOs or OWAs (Other Weird Arrangements).

But no matter how innovative or efficient these arrangements, I don't see the private side taking care of the problems created by the 3 A's (Aging, AIDS, and Access). An enlightened private-public partnership will be necessary. The 3 A's demand pervasive, demographic, lifestyle, and social shifts beyond the role of private organizations.

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president's letter

On Being Rural

Rural: *adj.* 1. Of or pertaining to the country as opposed to the city. 2. Of or pertaining to people who live in the country. 3. Of or relating to farming; agricultural.

Urban: *adj.* 1. Pertaining to, located in, or constituting a city. 2. Characteristics of the city or city life.

American Heritage Dictionary of the American Language

No one who lives in Minnesota questions the differences between rural and urban because we have a perfect example: the contrast between the Twin Cities metropolitan area and most of Greater Minnesota. Logic alone should tell us that solutions to problems in rural and in urban Minnesota must be approached with a recognition of the differences between the two. Health care is a clear example.

Physicians practicing in rural areas may be sacrificing the economic opportunities that their urban colleagues enjoy, but we enjoy the qualities of rural life that are priceless. Perhaps the most important of these is loyalty — a loyalty based on family, community, and localism. As a result, people living in rural areas are more likely to have a sense of identity, of who they are and where they came from. There is a lower level of competitiveness and less stress in the rural environment. You know who you are and who you are doing business with and who your neighbors are up and down the road.

Because there are fewer people and less resources, interdependency becomes a way of life in rural areas. Members of the community wear many hats. If my house is on fire, the volunteer fire fighters are probably my lawyer, my accountant, my service station mechanic, and my plumber.

Reciprocity is another necessary part of rural living. Farmers exchange work; businesses contribute goods and services to the community; neighbors pitch in to help someone else in need. Everyone has a personal stake in the community and contributes as much as he or she is able to provide. The rural social structure creates a sense of trust and a high level of accountability among its people.

Urban society, on the other hand, is more dependent on the system than on its citizens. The urban approach to daily life is quantitative and leaves no room for assumptions. Relationships are negotiated and contracts are drawn. The "bottom line" is the top priority. Living in a highly stressful, competitive society is the price paid by urban dwellers for increased economic opportunities and the cultural offerings of museums, concerts, and other entertainment.

L. Ashley Whitesell, M.D.

Health care is an integral part of both lifestyles. And problems surface when their different needs are not considered by policy-makers. Today, the economic problems caused by agriculture's decline affect northwest and southwest Minnesota. In the northeast, the problem is low demand for taconite. These economic woes place the difficult problem of maintaining small hospitals in rural Minnesota high on the agendas of community leaders, legislators, members of Congress, and rural physicians.

Quality health care requires access to physicians and hospitals alike. Currently, access to hospitals is in great danger in rural Minnesota. When that is lost, access to physicians may soon follow.

Our MMA Task Force on Rural Health survey last fall indicated that 5% of rural physicians believe their hospital may close, and 6% report their hospital is facing a merger. Eight percent responded that it is not likely they will continue to practice in the same area beyond a year or two, and 13% indicated it is only somewhat likely they will remain in their area. Clearly, an access problem is developing in our state.

Contributing to the decline in access to health care in rural Minnesota is the Medicare reimbursement system. According to the Minnesota Hospital Association, 45% of the patients in rural hospitals are on Medicare. Unfortunately, the Medicare program aggravates problems of rural hospitals by reimbursing them at a lower rate than urban hospitals.

One thing is clear, solving the health care problems in rural Minnesota requires approaches that differ from those used in urban Minnesota. But like all solutions, these will require cooperation and a resistance to yielding to shortsighted local interests. As hospitals affiliate or merge with larger systems, and as physicians' practices affiliate or merge with larger regional groups, it is my hope that economic strength can be achieved without sacrificing the values that are the bedrock of our rural society.

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letters to the editor

U of M Family Practice

*(**Editor's Note:** Copies of the following letters were given to* Minnesota Medicine *to share with our readers. The first is from MMA Board Chair Robert D. Christensen, M.D., to Roger Benjamin, provost and vice president for academic affairs at the University of Minnesota. The second, from Minnesota Academy of Family Physicians President David J. Mersy, M.D., was also sent to Roger Benjamin. The third was mailed on July 10 to family physicians in Minnesota.)*

Dear Dr. Benjamin:

In response to the report of the Advisory Task Force on Planning, the Board of Trustees of the Minnesota Medical Association (MMA) has authorized this letter to the Academic Affairs Planning Committee informing the committee that the MMA opposes the recommendation to transfer $4 million in resident funding from the Department of Family Practice.

Our concerns are based on several factors. Among these are: that funding for family practice residency positions cannot be replaced from other sources since there are no other sources; that the task force may have made its recommendation without adequate information; that access to health care in rural areas is currently threatened by the economic situation and will be further exacerbated if fewer family physicians are available; that family physicians are the backbone of our health care delivery system in rural Minnesota; that the need for family physicians continues to increase as evidenced by the requests for family physicians to the department; that the reduction will have serious implications for teaching hospitals in Minneapolis, St. Paul, and Duluth.

In conclusion, the Minnesota Medical Association expresses its position that at a time when the state of Minnesota is launching the Greater Minnesota Corporation to revitalize rural Minnesota and at a time when our MMA physician surveys indicate numerous problems with rural health care, the University of Minnesota by cutting the funding for family practice residency positions would be delivering a costly blow to the quality of health care in Minnesota.

We urge the Academic Affairs Committee to delete the recommendations to cut the family practice residency funding.

Robert D. Christensen, M.D., Chair
Board of Trustees
Minnesota Medical Association

Dear Dr. Benjamin:

We note from your open letter of June 22, 1987, to the faculty, staff, and students of the Twin Cities campus that the Academic Affairs Planning Committee is now actively reviewing the report of the Advisory Task Force on Planning. We want to express our deep concern about the task force recommendation to transfer $4 million in resident funding from the Department of Family Practice to other programs of the university.

The Minnesota Academy of Family Physicians represents the more than 2,000 family physicians who deliver a major part of primary health care to the people of Minnesota, particularly to rural Minnesotans. We believe that the proposed transfer of funds would cripple the future availability of family physicians and that those losses will become of great concern to the majority of persons living in rural Minnesota who now depend upon family physicians for health care.

The extent of our concern and the reasons for it are stated in the attached letter that was mailed to all family physicians in Minnesota on July 10. We hope the facts and the statistical data in this letter will be a strong incentive for the Academic Affairs Planning Committee to question the recommendations of the task force and to thoroughly determine the outcome of implementation of this recommendation. We believe it will result in the disabling of the Department of Family Practice's ability to provide graduate education for family physicians.

Our physicians will be grateful for an opportunity to appear before your committee to answer questions and offer helpful suggestions should you desire to invite them.

David J. Mersy, M.D., President
Minnesota Academy of Family Physicians

Dear Colleague:

As part of the University of Minnesota's Commitment to Focus, a report has been released that includes the recommendation that "The Medical School would fund residents in the Department of Family Practice from external sources, as is done by other clinical departments, freeing funds for strengthening the basic sciences and interdisciplinary programs." If this recommendation were carried out, it could destroy not only the university-affiliated family practice program but the programs at Duluth, Hennepin County Medical Center, and St. Paul-Ramsey Medical Center. Each year the affected family practice programs graduate 72 family practice residents. Mayo, which is not affected, graduates six additional residents.

Because of the grave implications of such a recommendation, the MAFP Board of Directors has directed that a concerted effort be made to prevent its implementaton. All MAFP members can play a role in affecting this decision, which would have a long-range, negative effect on the profession of family practice and the provision of health care in Minnesota. We encourage you to share your concerns with your legislators and with others in your community.

The recommendation for reallocation of $4 million within the medical school from family practice has not been generated by nor supported by either medical school or the health sciences. We believe the university faculty task force that made the recommendation did so based on incomplete or inaccurate information. Complete and accurate information has been provided to the university's central administration for use in consideration of the recommendation. We thought it would be helpful to our members if we provided them a summary:

■ Although there is a generally accepted surplus of physicians within this country, there is not a surplus of family physicians. The record of requests that come into the Department of Family Practice and Community Health for family physicians is significant. In 1984-85, 222 requests were received. In 1985-86, 534 requests were received. Clearly we do not have a surplus of family physicians.

■ The recommendation demonstrates a lack of understanding of the differences between funding family practice (or any other primary care training program) and the funding of hospital-based residencies. The usual support for graduate education in all specialties comes primarily from three sources: hospital funding, ambulatory practice income (professional fees), and public dollars.

– Within family practice graduate education programs, the total cost is increased significantly by ambulatory clinic costs which have no counterpart in hospital-based programs. These additional costs approximate the amount of public dollar subsidy to family practice residency education.

– The second major reason for lack of comparability to hospital-based residencies is related to the reduced amount of time that residents spend within the hospital setting providing service to hospitalized patients. As a result, hospitals are not willing to contribute the same level of reimbursement.

– The third major difference between the family practice graduate education programs and hospital-based residency programs deals with the relatively low reimbursement for primary care services.

■ It was in recognition of these realities related to the funding of family practice graduate education that the Minnesota Academy of Family Physicians approached the legislature in 1968-69 requesting support for training programs in family practice. Those funds were appropriated to the University of Minnesota through two special appropriations — one for departmental support and the other for support of graduate education. In the late 1970s, those appropriations were moved into the maintenance and operations budget of the university. This was done with the intent of stabilizing the funding of the department and the graduate education programs. It was not initiated as a mechanism for reallocation of dollars.

This spring, in response to MAFP-raised questions relating to family practice funding in the House Appropriations Subcommittee on Education hearings, the university representatives assured the House Subcommittee that the Department of Family Practice would not receive disproportionate cuts. It seems clear that to this date the legislative intent of funding family practice programs remains intact.

MAFP is formulating action to oppose this potential significant loss of funding to the family practice program. We expect to work in concert with representatives of the other Health Sciences disciplines that have been targeted by the task force for elimination or serious impairment. We will keep you informed of the progress and efforts made by your academy in this very important area.

David J. Mersy, M.D., President
Minnesota Academy of Family Physicians

Mandatory HIV Testing

Recently, State Rep. Allen Quist suggested that mandatory premarital testing for human immunodeficiency virus (HIV), the virus that causes AIDS, be done in Minnesota. He expressed his views in a letter that appeared in a number of Minnesota newspapers over the past two months. We would like to articulate the Minnesota Department of Health position on this issue.

As the AIDS epidemic progresses, it is important that the recommendations we make to the public have an impact on the spread of HIV. Otherwise, public trust and confidence in government recommendations will be eroded, and the public may not make effective behavioral changes needed to curtail the epidemic.

The use of condoms is an example of this. Early in the epidemic, many people believed that condoms were the answer to stopping the spread of HIV. We cautioned people at the time that, although condoms can help reduce virus spread for those who choose to remain sexually active with multiple partners or partners potentially infected with HIV, condoms were *not* the answer to this epidemic. This position has been substantiated by more recent information regarding condom failure and spread of the virus in spite of condom use in some situations.

Because we seek to develop policies that will have the greatest impact in limiting transmission of HIV, we have thus far not recommended mandatory premarital testing. Although premarital testing may assist in identifying a few individuals who are HIV infected, it will require the testing each year of 70,000 Minnesotans, most of whom are at no risk or little risk of infection. We are recommending expanded HIV-antibody testing and counseling for all individuals who are at risk of acquiring HIV infection, including those who visit sexually transmitted disease clinics, family planning clinics, and prenatal clinics. We are also recommending the expansion of educational programs for youth and adolescents, public education, and disease surveillance and control programs. These programs will have a much greater impact on limiting the AIDS epidemic than will mandatory premarital testing. Mandatory premarital testing should only be considered as a control strategy once these other programs are in place.

If there is to be a program of premarital testing, it must be designed so that state-sponsored counseling and testing sites will not be "swamped" with premarital testing clients, leaving those individuals at highest risk of infection without adequate testing and counseling services. The amendment proposed by Rep. Quist last session, calling for mandatory premarital testing and counseling, made no such provision, and would, therefore, have had a counterproductive effect on efforts to halt the epidemic.

In summary, our department is not specifically opposed to premarital testing. For individuals who have engaged in high-risk behaviors, we strongly recommend they be tested now, whether or not they plan to marry. Mandatory premarital testing can, and should, be considered after higher priority prevention programs are in place, and when provisions are included to prevent the displacement of high-risk individuals from existing counseling and testing sites. The public must also understand that the overall impact of mandatory premarital testing on the spread of HIV in Minnesota will be low. However, given the seriousness of the epidemic, even "low impact" programs like premarital testing ought to be considered.

The Minnesota Department of Health has recommended and implemented potentially controversial strategies for the prevention of HIV infection in the past. We are not afraid to do so if the strategy will have a significant impact on the prevention of HIV infection in Minnesota. Reporting of HIV-antibody-positive individuals to public health officials, expanded HIV-antibody testing and counseling, and contact notification are examples of such programs adopted here in Minnesota. In most cases, Minnesota has been one of the first states to initiate such programs, with other states subsequently developing similar policies. We believe these programs can have a significant impact on HIV transmission, and they have been implemented for this reason. We will continue this "proactive" approach in the future in implementing effective prevention strategies.

Sister Mary Madonna Ashton
Minnesota Commissioner of Health

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special reports

Low-level radioactive waste

A report of the MMA Subcommittee on Environmental Health

At the 1986 Annual Meeting, the MMA Subcommittee on Environmental Health was asked to prepare a statement on safe disposal of low-level radioactive waste. Following is the subcommittee's report, submitted to the MMA House of Delegates in May 1987.

Minnesota is concerned about low-level radioactive waste (LLRW) because:

- New federal law provides that by 1993, low-level radioactive waste will no longer be accepted at the current disposal sites in South Carolina, Nevada, and Washington that have been used during the past 20 years. Each state must have a safe repository by 1993.
- Minnesota has become a member of the Midwest Interstate Low Level Radioactive Waste Commission, which includes Wisconsin, Iowa, Michigan, Montana, Indiana, and Ohio.
- As one of the four states in the Midwest Compact that produces the most low-level radioactive waste, Minnesota has a greater chance of being selected in May 1987 as the disposal site if no state volunteers as a site for regional repository. (Note: Michigan has since been selected as the top site. Minnesota was ranked fourth.)

The designated state will be responsible for selecting a site and designating the particular type of disposal facility and will be reimbursed for these costs by the other member states.

Before any facility can be constructed, the site and proposed facility must satisfy stringent state and federal performance standards and effectively demonstrate that there is not public health or safety risk.

What is Low-level Radioactive Waste?

The Low Level Waste Policy Act (1980) defines LLRW by the exclusion of all other radioactive waste.

LLRW typically consists of mildly to moderately contaminated wastes generated by hospitals; medical, academic, and pharmacologic research; and many industrial activities as well as the housekeeping functions of nuclear reactors. It includes protective clothing and other items that may have become contaminated during the use of radioactive materials. Included are filters, sludges, and resins from nuclear reactors and target materials of cyclotrons used for isotope products. Nuclear power plant operations account for 75% to 90% of all LLRW produced.

Because of the heterogeneity of LLRW, the Nuclear Regulatory Commission issued regulations that further subclassified LLRW into three classes, namely,

- Class A wastes are the least hazardous and must be stored for *50 years.*
- Class B wastes are of greater hazard and must be stored for *100 years.*
- Class C represents more radioactive and longer-lived radioactive waste, with a *500 year* storage requirement.

About 87% of our region's waste is Class A, 12% Class B, and 1% Class C.

The Midwest Compact Region disposes of about 200,000 cubic feet of LLRW annually. A greater amount is generated, but some of the waste is treated or stored for decay at the site of generation to reduce the volume before it is disposed. Historically, almost 25% of the total LLRW is medically related. During the last five years, the annual volume has not increased, due in part to an on-site reduction of volume in response to restricted commercial disposal space and increased cost. Volume reduction in on-site processing of low-level waste has been practiced by Minnesota generators. In the next five years, it is estimated that the Minnesota generators of LLRW will decrease the volume shipped by 30%.

Due to its radioactive properties, most forms of LLRW can be detected should it escape into the environment; this is in contrast to chemical wastes, which do not exhibit similar characteristic properties to help facilitate their detection.

What are the Risks of LLRW?

We are exposed to small quantities of both natural and manmade radiation. Studies indicate that, in general, the greater our exposure to radiation, the greater the risk. Although the body has mechanisms that can repair some damage, most experts agree that any level of exposure to radiation can potentially harm DNA. Therefore even low levels of radiation create some risk, although it may be very small. Notice that the discussion is of *risk*, not of certainty. At even very high doses of radiation, some people are affected while others are not.

The human health risks attributable to radiation have been determined in two ways. The first is by means of animal studies. The second is by studying groups of people who have been exposed to a known dose of radiation, either through medical treatment or by exposure to fallout from the bombing of Hiroshima and Nagasaki. Most of these exposures to radiation have been at relatively high levels. The evidence leads most experts to believe that a direct relationship exists between the amount of radiation to which a body is exposed and the level of risk of getting cancer. Human studies have been less conclusive regarding the risks of genetic defects, but it is generally agreed that radiation can cause human genetic effects similar to those displayed in animal studies.

To get an idea of the relative risks, it is sometimes helpful to compare the risk with that posed by other activities. The International Commission of Radiation Protection has estimated that the increased risk of cancer of someone exposed to one REM of radiation is roughly one ten-thousandth. From that we can calculate that the risk to someone exposed to .01 REM is one one-millionth. That one-in-a-million risk has been estimated to be equivalent to the risk present each time one engages in smoking 1.4 cigarettes, traveling 300 miles by car, or living in a highly polluted area such as New York or Boston for two days.

People generally object more to risks that they consider to be involuntary than to risks they take on as a matter of choice. Thus, many people who object to increased health risk due to environmental factors beyond their control may, for example, ride in cars with their seat belts unfastened, which entails fairly large risks. This also may be partly because they do not understand the relative extent of the risks involved and because they do not perceive that they are benefiting from the technology that creates the environmental risk factors.

How Will a Regional LLRW Disposal be Designed?

Most of the 200-acre site would be a controlled buffer zone around the waste disposal location. The Midwest Commission has resolved that the disposal technology alternatives for a Midwest site should not include shallow land burial or any modifications of this technology. Rather, the advanced technologies that have been studied and recommended in the commission's plan include above- and below-concrete bunkers, and above- and below-ground retrievable modular concrete canisters. The engineer barriers would provide protection beyond that provided by the waste packages in a well-chosen site. Continuous environmental monitoring would take place at this site for at least 100 years after the site is closed. Standards for a disposable site limit the permissible amount of radiation to the environment. The maximum radiation from a disposal site facility will be equivalent to no more than .025 REM per year, reaching a person standing at the boundary of the site for one year. Classes of wastes should be segregated for storage to promote accurate monitoring of declining radioactivity levels and ease of retrieval.

Disposal Site Criteria

- The site should be relatively simple in geology and hydrology to facilitate modeling for performance analyses.
- Future population growth should not affect the ability of the disposal facility to meet performance objectives.
- Areas of known natural resources should be avoided.
- Areas where flooding could occur should be avoided.
- Depth of the water table should be sufficient to prevent groundwater intrusion into the waste.
- Areas of high industrial activity should be avoided.
- Areas of frequent or intense surface geologic processing should be avoided.

MMA Subcommittee on Environmental Health Recommendations

- There should be public acceptance of LLRW as a necessary by-product of a technologic society. In addition, the public should be educated on the acceptable relative health risks of locating a LLRW disposal (storage) site in Minnesota.
- The compacting of LLRW to decrease the volume of waste should be promoted.
- The facility must be designed using present technology to ensure that the recommended levels of safe radiation exposure cannot be exceeded. The geologic and geographic limitations must be considered in choosing the site location.
- Safeguards should be met to ensure the viability of our natural resources in and around the LLRW site.
- The commission that regulates and advises the operation of the facility should include a physician educated in the discipline of environmental health and specifically in low-level radioactive waste management.
- The office of the Commissioner of Health should have ultimate authority and jurisdiction to ensure that performance standards and monitoring requirements are met.

MMA Subcommittee on Environmental Health

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New physician review process stresses intervention*

The word "sanction" frightens physicians. J. Bryan Warren, M.D., chairman of the Foundation's Medical Standards and Practice Committee, agrees that it should. Although no physicians have been sanctioned in Minnesota, it is an action that Warren says is so serious it usually ruins a physician's career. The Foundation for Health Care Evaluation (FHCE), Minnesota's PRO, does not have the power to sanction anyone, but it can recommend to the Office of the U.S. Inspector General that a physician be sanctioned. The consequences are usually severe.

Penalties may involve fines or prohibition from treating Medicare patients. And typically, the physician's name is published in the local newspaper, which often has devastating effects on the physician's practice.

Over the last year the FHCE has added intervention steps prior to institution of the sanction process that are generally not used in other states. Warren says these steps were added to increase the opportunities for physicians to engage in a dialogue with their peers about the case in question long before the sanction process is instituted. The foundation is concerned that physicians have ample opportunity to discuss the case early in the process.

Basically, the new steps include a review by a physician, a review by the Quality Assurance Committee (QAC), and an opportunity for the treating physician to appear before the QAC.

In detail, a review begins with the initial identification of a quality problem by a well-trained nurse reviewer. Next, a physician reviews the medical chart. (Between 200 and 400 physician reviewers are at work for the Minnesota PRO at any one time and conduct all the reviews once the nurse reviewer identifies a potential problem.) The process may end here if no problem is confirmed. If a problem is identified by the physician reviewer, a nonthreatening letter is sent to the treating physician requesting further explanation or clarification. At that time, the case is referred to the Quality Assurance Committee made up of three or four physicians. If the treating physician desires, he or she may choose to appear before the QAC (in addition to providing a written response) before the case ever goes to the Medical Standards and Practice Committee.

According to Warren, who is an internist with Ramsey Clinic Associates in St. Paul, the new steps were added to provide additional safeguards and opportunities for dialogue before a harsher letter from the Health Care Finance Administration is sent to the physician under review. The HCFA letter uses federally mandated language that has proven to be very threatening in tone, referring to "substantial" or "gross and flagrant" violations.

If a case continues to be a concern to the Quality Assurance Committee, it is referred to the Medical Standards and Practice Committee, chaired by Warren, who said he believes, "No one likes to sanction physicians, because a sanction really represents a failure of our physician organization to educate physicians about community standards of practice." The 21-member committee is made up of 19 physicians and two hospital administrators who serve three-year terms.

A physician under review is offered the opportunity to meet with the committee to discuss the case. Depending upon the committee's findings, the problem could either be determined to be resolved, or a first notice of proposed sanction would be issued, in which case a third peer review panel would review the case. The case could then be resolved or lead to a second notice of possible sanction followed by a fourth review panel. Again, the problem could be resolved or referred, this time to to the Office of the U.S. Inspector General for sanction. Although no physicians have been sanctioned in this state, 40 were sanctioned in the U.S. in 1985.

A major factor in the review of cases is the quality of the documentation in the patient chart. When the physician record provides little or no rationale for extensive care received or seems grossly inadequate relative to the outcome, the chart will become a factor in the review. As Warren notes, "Physicians have to accept the fact that the chart is potentially being examined by everyone."

According to Warren, the FHCE concentrates its PRO efforts on helping physicians identify deficiencies and find solutions. For example, the FHCE may recommend that a physician complete a Corrective Action Plan such as attending a EKG interpretation course or a pharmacology course. Compliance is voluntary, but Warren reports that most physicians cooperate.

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*Adapted (with permission) from an article written by Kathleen Welte and published in the March-April issue of the Ramsey County Medical Society *Bulletin*.

To show you how many hypertensives stayed on

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Sole therapy or concomitant therapy? Fifty-nine percent of the time, INDERAL LA stood on its own.

The patients in the nationwide compliance trial were no different from yours. Generally when the antihypertensive regimen is complicated, compliance may become a problem. So, the effectiveness of INDERAL LA as once-daily monotherapy is a big plus. Of the remaining hypertensives in the program, 36% were treated merely with the addition of a diuretic to INDERAL LA.

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BRIEF SUMMARY (*FOR FULL PRESCRIBING INFORMATION SEE PACKAGE CIRCULAR*)

INDERAL® LA brand of propranolol hydrochloride **(Long Acting Capsules)**

DESCRIPTION. INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride INDERAL LA is available as 60 mg 80 mg 120 mg and 160 mg capsules

CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor-blocking agent possessing no other autonomic nervous system activity It specifically competes with beta-adrenergic receptor-stimulating agents for available receptor sites When access to beta-receptor sites is blocked by INDERAL the chronotropic inotropic and vasodilator responses to beta-adrenergic stimulation are decreased proportionately

INDERAL LA Capsules (60 80, 120 and 160 mg) release propranolol HCl at a controlled and predictable rate Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL Tablets The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol resulting from the slower rate of absorption of propranolol Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially

INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings however such as hypertension or angina where there is little correlation between plasma levels and clinical effect INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension it may be used alone or used in combination with other antihypertensive agents particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina palpitations and syncope INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first-degree block, 3) bronchial asthma 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

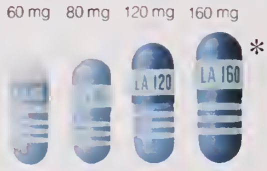
WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

ONCE-DAILY

INDERAL® LA

(PROPRANOLOL HCl)

LONG ACTING CAPSULES



IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can in some cases lead to cardiac failure Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely or INDERAL should be discontinued (gradually if possible)

> IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following *abrupt* discontinuance of INDERAL therapy Therefore, when discontinuance of INDERAL is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol However, such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required Beta blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected Following insulin-induced hypoglycemia propranolol may cause a delay in the recovery of blood glucose to normal levels

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism including thyroid storm Propranolol may change thyroid function tests, increasing T_4 and reverse T_3, and decreasing T_3

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case, this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. GENERAL Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

CLINICAL LABORATORY TESTS Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase alkaline phosphatase lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug especially intravenous verapamil, for both agents may depress myocardial contractility or atrioventricular conduction On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions, especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol

Ethanol slows the rate of absorption of propranolol

Phenytoin, phenobarbitone, and *rifampin* accelerate propranolol clearance

Chlorpromazine when used concomitantly with propranolol results in increased plasma levels of both drugs

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol

Cimetidine decreases the hepatic metabolism of propranolol, delaying elimination and increasing blood levels

Theophylline clearance is reduced when used concomitantly with propranolol

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

PREGNANCY Pregnancy Category C INDERAL has been shown to be embryotoxic *in* animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

NURSING MOTHERS INDERAL is excreted in human milk Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman

PEDIATRIC USE Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular Bradycardia, congestive heart failure, intensification of AV block hypotension paresthesia of hands, thrombocytopenic purpura arterial insufficiency, usually of the Raynaud type

Central Nervous System. Light-headedness, mental depression manifested by insomnia, lassitude weakness, fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations, vivid dreams, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics For immediate formulations, fatigue, lethargy and vivid dreams appear dose related

Gastrointestinal Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea constipation, mesenteric arterial thrombosis ischemic colitis

Allergic Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory Bronchospasm

Hematologic Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura

Auto-Immune In extremely rare instances, systemic lupus erythematosus has been reported

Miscellaneous. Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary, especially to maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION — *Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS — *Dosage must be individualized* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS)

MIGRAINE — *Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimal migraine prophylaxis If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

*The appearance of these capsules is a registered trademark of Ayerst Laboratories

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contributions

Mandibular reconstruction using a free forearm flap

J. Bart Muldowney, M.D.; Myer S. Leonard, M.D., D.D.S.+; Allen L. Van Beek, M.D.**

Two patients who had sustained major tissue loss following resection of orofacial tumors were treated with free forearm flaps that included a segment of the radius. One of the patients had received 4,500 rads of radiation following tumor resection. Both grafts were successful. Microvascular free grafts have potential for replacement of extensive amounts of tissue, even in areas of previous radiation.

The replacement of tissue in oral and facial areas is always a challenge to a surgeon. Accidents, gunshot wounds, and burns often cause tissue damage and tissue loss in young people. In older patients, the tissue deficit may follow surgery to remove a malignancy. Pedicle flaps mask these deficits, particularly in young people in whom the vascularity of surrounding tissue is not impaired. The use of autogenous grafts of iliac bone to replace the mandibular deficit has been practiced for many years.

Extensive surgery to remove a malignant orofacial tumor generally leaves a large tissue deficit. Closing such wounds frequently involves the tethering of the patient's tongue to the floor of the mouth, and if part of the body of the mandible has been lost, it may be necessary to swing the midline of the jaw to the affected side. The sequelae of such reconstructive techniques usually includes unintelligible speech, salivary incontinence, and the inability to wear a mandibular prosthesis. This latter problem is due to the loss of bone, and thus, no stability and retention can be achieved for an inserted denture. Partly because of the decreased size of the oral stoma, these patients have difficulty chewing and are restricted to a diet of soft foods, which rapidly becomes dull and monotonous. Also, the cosmetic results can induce depression in the patient.

Many of these patients have received radiotherapy, which further diminishes the vascularity of the area and makes conventional bone graft treatment impossible. Pedicle flaps that include a rib are rarely satisfactory. If taken from the same side as the deficit, the rib will curve "the wrong way." If the rib is taken from the contralateral side, the resulting pedicle is frequently too short. If only soft tissues need to be replaced, then a paddle flap from the anterior chest wall can make a satisfactory pedicle.

One way to avoid the problems of local tissue vascularity and pedicle length is to use a microvascular flap. Microvascular flaps are becoming increasingly attractive to surgeons because tissue from distant sites can be taken with a total vessel link-up and are not dependent on the local small vessel vascularity to survive.

Among the earliest successful free flaps were those reported by McLean[1] and Harii.[2] McLean transferred a segment of omentum to close a scalp defect, and Harii treated a case of alopecia cicatrisata with a free flap based on the superficial temporal artery. Other sites have been used including the groin, dorsalis pedis, and axillary areas.

The free forearm flap was a Chinese innovation[3] and by 1984 Quie[4] had reported on 139 cases of free flaps transferred to the oral region. This highly innovative procedure solves the problem of soft tissue defect because the tissue transferred is very thin and pliant. However, a mandibular bone deficit obviously requires something more. McGregor[5] included a segment of the radial bone in the free forearm graft and used this to replace the mandibular defect.

We have now used this procedure on four patients, all of whom have been followed for 18 months or more. We report two of these cases.

Case Reports

Case 1: A 76-year-old farmer was referred following removal of a squamous cell carcinoma on the lower lip. The lesion had been present for about three years and was not thought to be malignant. After resection of the lesion and the surrounding tissues (Figures 1 and 2) the patient was left with a mandibular deficit of 4 cm and a soft tissue deficit of between 6 and 8 cm. He lost 54 pounds in weight and suffered salivary incontinence due to inability to close his mouth. It was thought that a free forearm graft including the radial bone and the tendon of the palmaris longus would be the best technique to replace the tissue lost. The oral wound was cleaned, the area debrided, and the deficit re-established. At the same time, a forearm and radial bone flap was obtained. A sphygmomanometer was applied

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+Division of Oral Surgery, Hennepin County Medical Center, Minneapolis, MN.

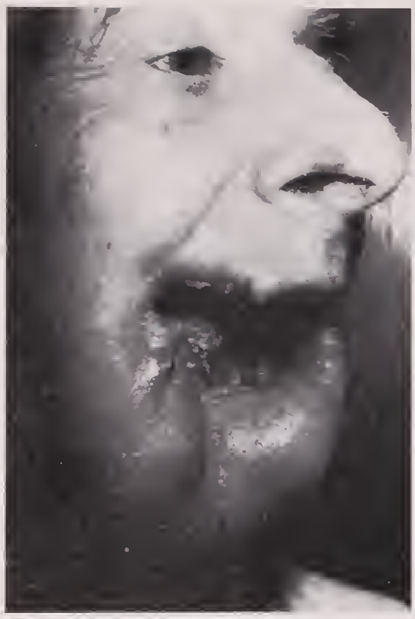

FIGURE 1 — Soft tissue defect after excision of tumor of lip.

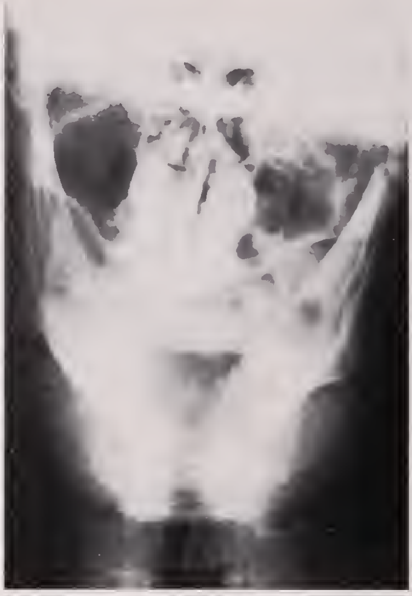

FIGURE 2 — Bone defect in mandible after excision of tumor.

to the left upper arm and 200 mmHg of pressure established, creating a relatively dry field for the dissection.

The incision was made along the course of the radial artery and an 8 x 12 cm flap was centered on the palmaris longus tendon (Figures 3 and 4). Included in the flap was the fascia of the brachioradialis, the deep fascia of the volar forearm, the epimysium of the flexor carpi radialis, the radial artery and cephalic vein, and the tendon of the palmaris longus. A 6 cm segment of the radial bone was cut with a microaire saw, and the osseocutaneous flap fractured free at its proximal end. Blood flow returned promptly when the cuff was released. The flap was perfused for about 30 minutes, during which time the facial artery and the companion veins were isolated. The flap from the forearm was sectioned and osteosynthesis in the jaw accomplished, followed by a minimum packing of the wound margin prior to the anastomosis of the vasculature. The anastomosis was completed and the wound fully closed. The free flap contained a tendon of palmaris longus because we feared that the sphincter action of the mouth would not have been sufficient. Through small incisions in the right and left nasolabial fold each end of the tendon was woven around the right and left orbicularis muscle, respectively, and sutured to itself (Figure 5). The remaining wound was then approximated closely and excessive epithelial tissue removed. The patency of the vessels was followed over the next few days by thermocouples and a doppler instrument. The forearm wound was covered with a split-thickness graft from the right thigh. The patient made an excellent recovery; he gained 30 pounds in the following few months and was able to play the harmonica again (Figure 6). He died at the age of 79.

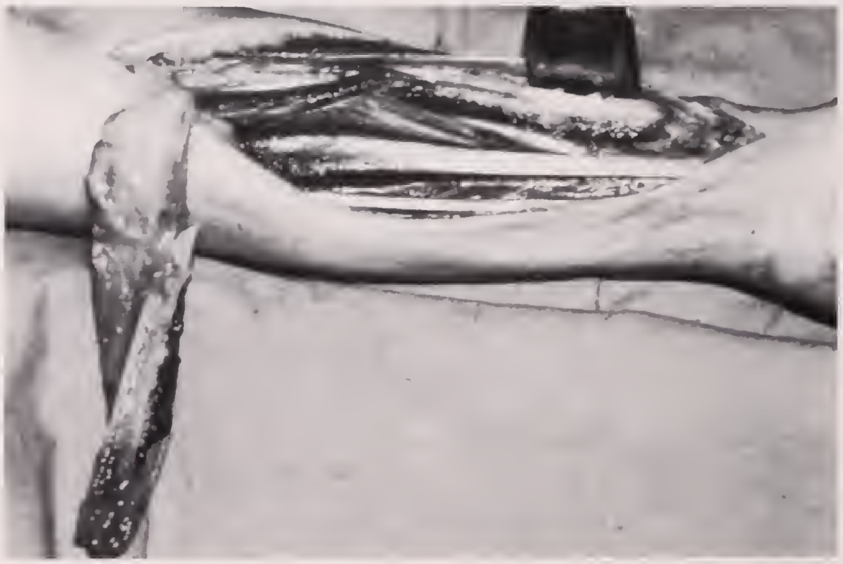

FIGURE 3 — Forearm flap.

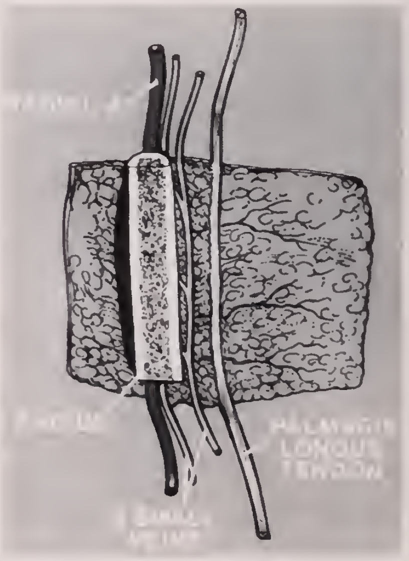

FIGURE 4 — Structures of free graft.

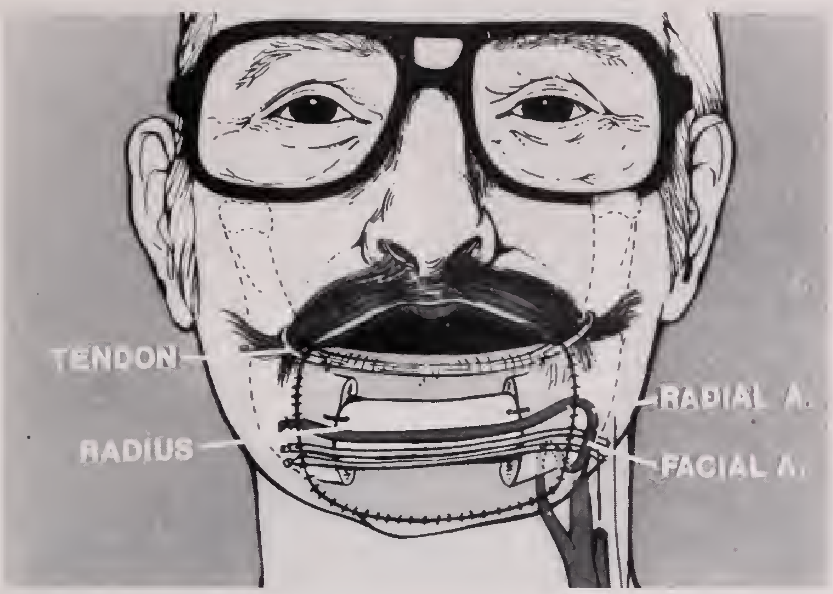

FIGURE 5 — Diagramatic representation of graft of bone, soft tissue, and palmaris longus tendon.

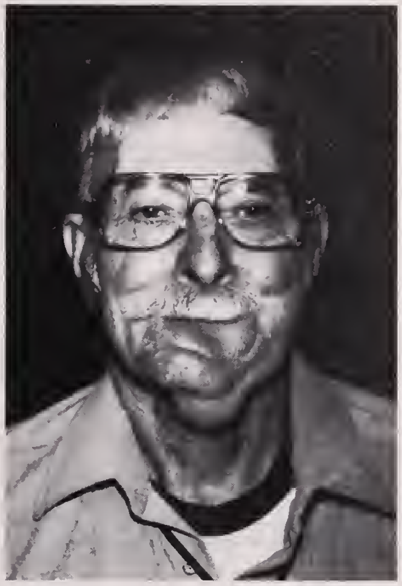

FIGURE 6 — Three months postoperatively.

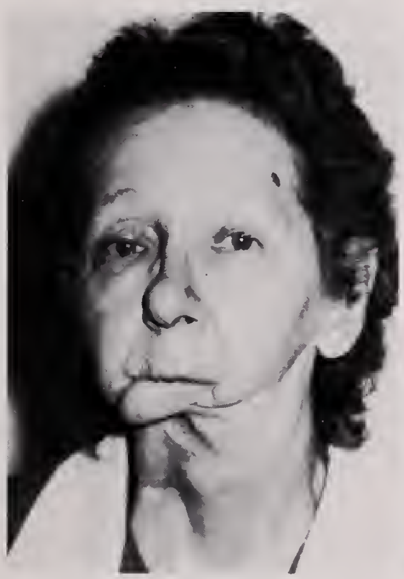

FIGURE 7 — Preoperative, case 2.

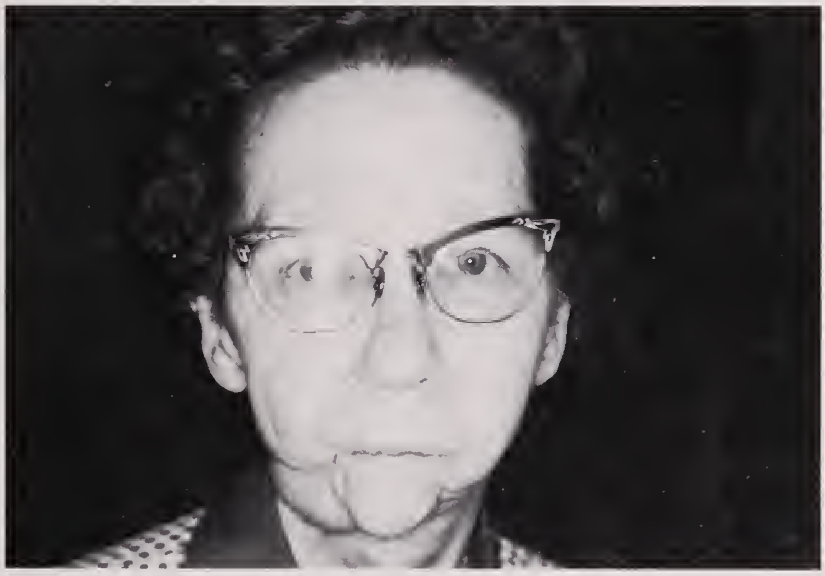

FIGURE 8 — Postoperative, case 2.

Case 2: A 65-year-old female had an anaplastic tumor resected from the right side of the jaw and neck in 1974. The recurrence two years later had been treated with radiotherapy (4,500 rads). An attempt to reconstruct the defect with a pectoralis major pedicle flap with a rib graft was not wholly successful, leaving the patient with a monotonous diet and barely intelligible speech. She was also very depressed by her appearance.

The operative procedure on the left arm was similar to that done in the first case except that the palmaris longus tendon was not included in the graft and the wound was closed without need of a skin graft. The length of radius removed was 11 cm.

The recipient site was approached extraorally, the tethered mandibular stump released, and the chin brought into the midline. The radial segment of bone was secured to the mandibular stump with Prolene sutures. The neck vessels selected for the vascular link-up were the lingual artery and the concomitant vein — a very tedious dissection due to the previous radiation and surgery.

The patency of the vessels was followed as described above.

The postoperative follow-up of over 18 months has been without incident. The patient's speech is now much more intelligible, and she is pleased with her appearance and eats a much more interesting diet (Figures 7 and 8).

Discussion

The forearm flap has several advantages over the groin and dorsalis pedis flaps because it does not contain an excessive amount of fat, nor is its vascular pedicle short, as in the groin flap. The dorsalis pedis has a long pedicle but an inadequate amount of subcutaneous fat. The anatomic constancy and the rather large vessels (3 mm) are advantages in using the forearm flap. In addition, large amounts of soft tissue can be obtained with it.

If the mandibular defect involves the symphyseal area, it can be hazardous to attempt to contour the radial bone by segmenting it. McGregor[5] was able to do this with ease, but we found that the adherence of the soft tissue to the bone was jeopardized during segmentation of the donor bone.

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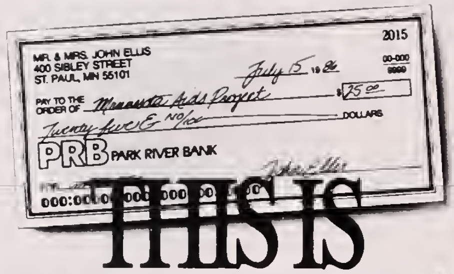

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Ibuprofen-induced interstitial nephritis and the nephrotic syndrome

Jonathan P. Tolins, M.D. and Paul Seel, M.D.**

Ibuprofen has recently been approved for over-the-counter use. The combination of acute interstitial nephritis and the nephrotic syndrome has been commonly reported with the phenylproprionic acid derivatives fenoprofen and naproxen[1-4] but rarely with the related derivative ibuprofen. Two cases of interstitial nephritis and nephrosis associated with ibuprofen use are reported here. Symptom onset was 5 months following exposure in one case and 13 months in the other. Both patients exhibited fluid overload and heavy (>18 gms/24 hr) proteinuria, with one patient developing azotemia. Renal biopsy showed interstitial nephritis with foot process fusion as the only glomerular abnormality. Resolution was prompt after withdrawal of ibuprofen without institution of steroid therapy. Physicians must be aware of this potential complication in patients using ibuprofen without prescription.

Nonsteroid anti-inflammatory drugs (NSAID) have been linked to a spectrum of renal diseases.[1,5-9] The combination of acute interstitial nephritis, with or without azotemia, and nephrotic syndrome has been most commonly reported with the propionic acid derivative fenoprofen. This agent is associated with up to 60% of cases.[1,2] In fact, this syndrome has been referred to as "fenoprofen nephropathy."[3,10] The indoleacetic acid derivatives sulindac, indomethacin, and tolmetin have been implicated,[11,12,13] along with zomepirac.[14] Among the other proprionic acid derivatives, naproxen has been associated with this syndrome[1,2] but reports involving ibuprofen, perhaps the most commonly used NSAID, have been rare. In an extensive review of the literature, Garella and Matarese[1] found 30 cases of acute interstitial nephritis and the nephrotic syndrome associated with NSAID. In only one case was ibuprofen implicated, and no clinical details were available for critical evaluation.[15] Feinfeld et al.[2] reviewed 24 cases of nephrotic syndrome associated with the use of NSAID and found only one case related to use of ibuprofen.[16] In this case the association was unclear due to the coexistence of biopsy-proven diabetic nephropathy.

We report two cases of ibuprofen-induced interstitial nephritis and nephrotic syndrome.

Case Reports

Case 1: MP is a 43-year-old Native American female, referred to the University of Minnesota Hospitals for evaluation of the nephrotic syndrome. In February 1983, she began taking 1200-2400 mg of ibuprofen daily for low back pain. One year later she was seen by a physician for evaluation of chest pain. Laboratory evaluation showed an albumin of 4.0 gm/dl, BUN of 12 mg%, creatinine of 0.6 mg%. The urinalysis was negative for protein by dipstick, but many white blood cells and bacteria were noted. A urine culture grew E. coli. The patient was prescribed tetracycline and nitrofurantin and started on propranolol for presumed angina pectoris.

One month later she presented to another hospital with new onset of dyspnea, edema, and a 20-pound weight gain. Admission laboratory showed an albumin of 1.1 gm/dl, cholesterol of 462 mg%, BUN of 24 mg%, creatinine 0.9. mg%, sodium 138, potassium 4.7, chloride 110, and bicarbonate 20 m/Eq/L. Urinalysis revealed + + + protein, 3-5 WBCs, and 1-3 waxy casts without bacteria. A 24-hour urinary protein excretion of 19.5 gms and a creatinine clearance of 94 cc/min were found.

She was treated with bed rest, diuretics, and discontinuation of her ibuprofen with brisk diuresis. Upon the patient's transfer to our hospital one week later, a 24-hour urine protein excretion was noted to be 3.2 gms. A percutaneous kidney biopsy showed a monocytic interstitial infiltrate with normal glomeruli. On electron microscopy there was foot process fusion with no dense deposits or abnormalities in the basement membrane. On immunofluorescence there was faint staining of the capillary loops for IgG and C_3. One week later, a 24-hour urine collection showed a protein excretion of 39 mg. She has since been asymptomatic, without edema or recurrent proteinuria.

Case 2: TA is a 64-year-old white male with a history of hypertension and adult onset diabetes mellitus. In October 1983, he was begun on ibuprofen, 2400 mg daily, for shoulder pain. In January 1984 he was admitted to the Minneapolis Veterans Administration Hospital for evaluation of left facial dysesthesia.

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Routine chemistries showed a serum sodium of 141, chloride of 104, potassium of 4.3, and a bicarbonate of 27.7 mEq/L. The BUN was 21; creatinine, 1.2; and glucose, 119 mg/dl. The cause of his symptoms remained obscure, and he was discharged on tolazamide, furosemide, atenolol, potassium chloride, and ibuprofen 2400 mg daily. One month later he presented to the emergency room complaining of dyspnea. Jugular venous distension and 2+ ankle edema were noted. He was treated with further diuretics but did not respond and was admitted to the hospital two days later.

At physical exam, the patient's blood pressure was 160/90 mmHg and his weight 91 kg. There was marked jugular venous distension. An S3 gallop, bibasilar rales, and 4+ pitting edema to the knees were noted. Laboratory examination revealed a serum sodium of 134, potassium of 5.6, chloride of 113, bicarbonate of 16.3 mEq/L. The BUN was 61 and the creatinine 2.6 mg/dl. Arterial blood gases showed a pH of 7.44, pCO_2 of 39 mmHg, and a PO_2 of 73.4 mmHg. The albumin was 1.6 gm/dl. The white blood cell count was 11,300/mm^3 with 3% eosinophils. A urinalysis showed 4+ protein, 2+ white cells, and few granular casts. There were no red blood cell casts or eosinophils seen. A 24-hour urine protein collection had 18.9 gms of protein. The ibuprofen was discontinued, and the patient was treated with diuretics. A percutaneous renal biopsy was performed. Light microscopy showed over 20 glomeruli that were unremarkable. Interstitial edema, moderate areas of fibrosis, and tubular atrophy were seen. Areas of interstitial infiltrates composed of lymphocytes, eosinophils, and rare polymophonuclear leukocytes were present. Immunofluorescent studies showed faint glomerular staining for IgG in focal capillary loops. Electron microscopy revealed prominent foot process fusion and rare, small subepithelial dense deposits.

The patient was discharged on diuretics and atenolol. One month later he was free of edema. Six months after discharge the BUN was 28; creatinine, 1.7 mg/dl; albumin, 4.2 gm/dl; and the urine dipstick was negative for protein.

Discussion

The clinical and histologic features of these two cases are similar to previous reports of acute interstitial nephritis and the nephrotic syndrome associated with other NSAID.[1-4, 11-13] Ibuprofen was prescribed for common musculoskeletal complaints. Both patients had documentation of normal renal function prior to the onset of nephrosis, one at 13 months and the other at 5 months following exposure to ibuprofen. The onset of complaints was insidious, with edema and pulmonary congestion as the main presenting symptoms. The degree of proteinuria was remarkable, with both cases in excess of 18 gms/24 hrs. The first patient had relatively well-preserved renal function, but the second was azotemic. Histologically, both cases showed marked interstitial edema, a mononuclear cell interstitial infiltrate, and foot process fusion with otherwise normal glomeruli. The resolution of nephrosis and azotemia was prompt after discontinuation of ibuprofen, thus strongly implicating this agent in the pathogenesis of nephrotic syndrome in both patients. Steroid therapy was not used in either case.

The pathogenesis of this syndrome is unclear. Although apparently idiosyncratic, the association of this syndrome with agents of diverse chemical structure may indicate a common physiologic effect. Finkelstein et al. have suggested that disordered T-cell immunity may play a role, with prostaglandin synthesis inhibition stimulating lymphokine production and uninhibited delayed hypersensitivity.[10] Why fenoprofen should be frequently implicated while the related, and more commonly used ibuprofen is so rarely reported as causative is obscure.

The availability of ibuprofen, albeit at lower dose, for use without prescription is cause for concern. Unlike the situation in hemodynamically mediated acute renal failure due to use of NSAID, where patients with baseline-decreased renal perfusion are at increased risk of toxicity and may be identified prior to therapy, patients who subsequently develop acute interstitial nephritis and nephrotic syndrome generally have normal baseline renal function.[1] Furthermore, the onset of the syndrome may be temporally remote from initiation of the offending agent, as in these two cases. Therefore, it is impossible to predict who is at increased risk for developing this lesion or to reassure ourselves that toxicity will not develop by following renal function for a brief initial period after starting ibuprofen. The formulation of ibuprofen available "over-the-counter" is a low dosage relative to the amounts taken by the patients reported here. However, a dose dependency for the development of acute interstitial nephritis and the nephrotic syndrome has not been established. These two cases demonstrate a clear causal relationship between use of ibuprofen and the development of acute interstitial nephritis and the nephrotic syndrome. Although uncommon, it is important to be cognizant of this adverse effect because we can expect increasing use of ibuprofen without prescription.

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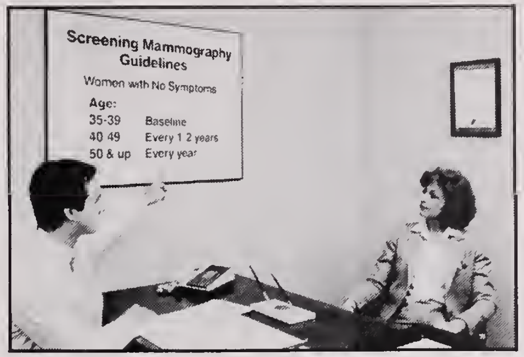

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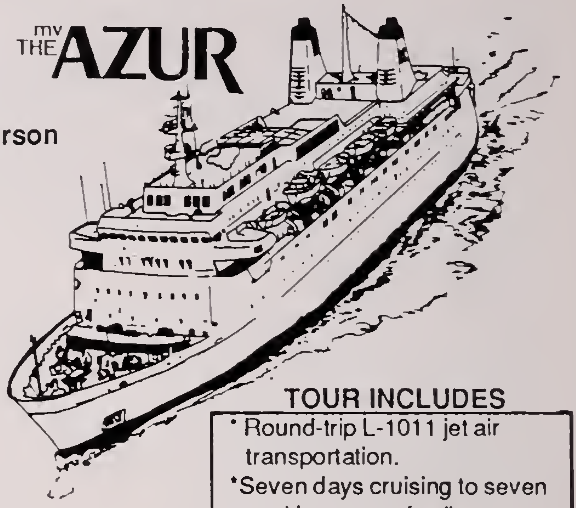

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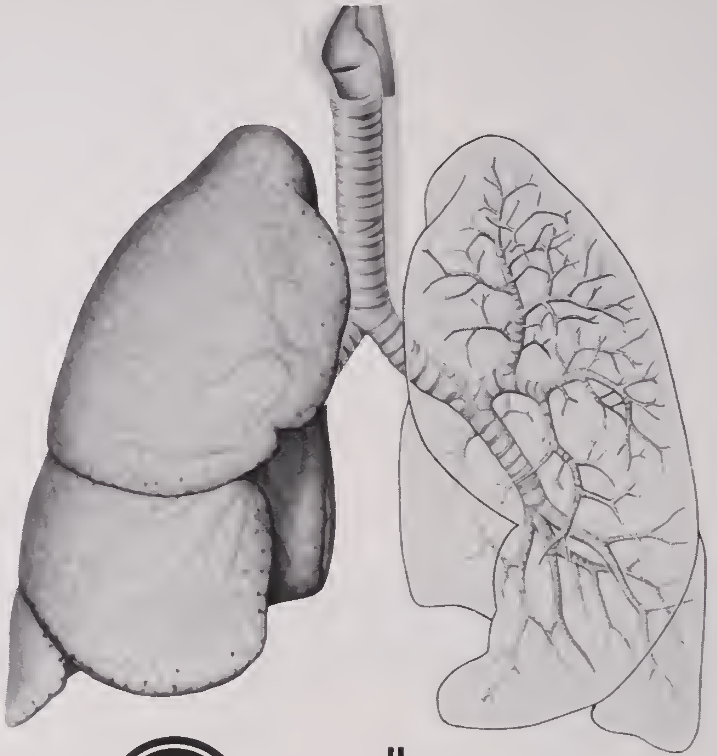

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Warnings:
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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

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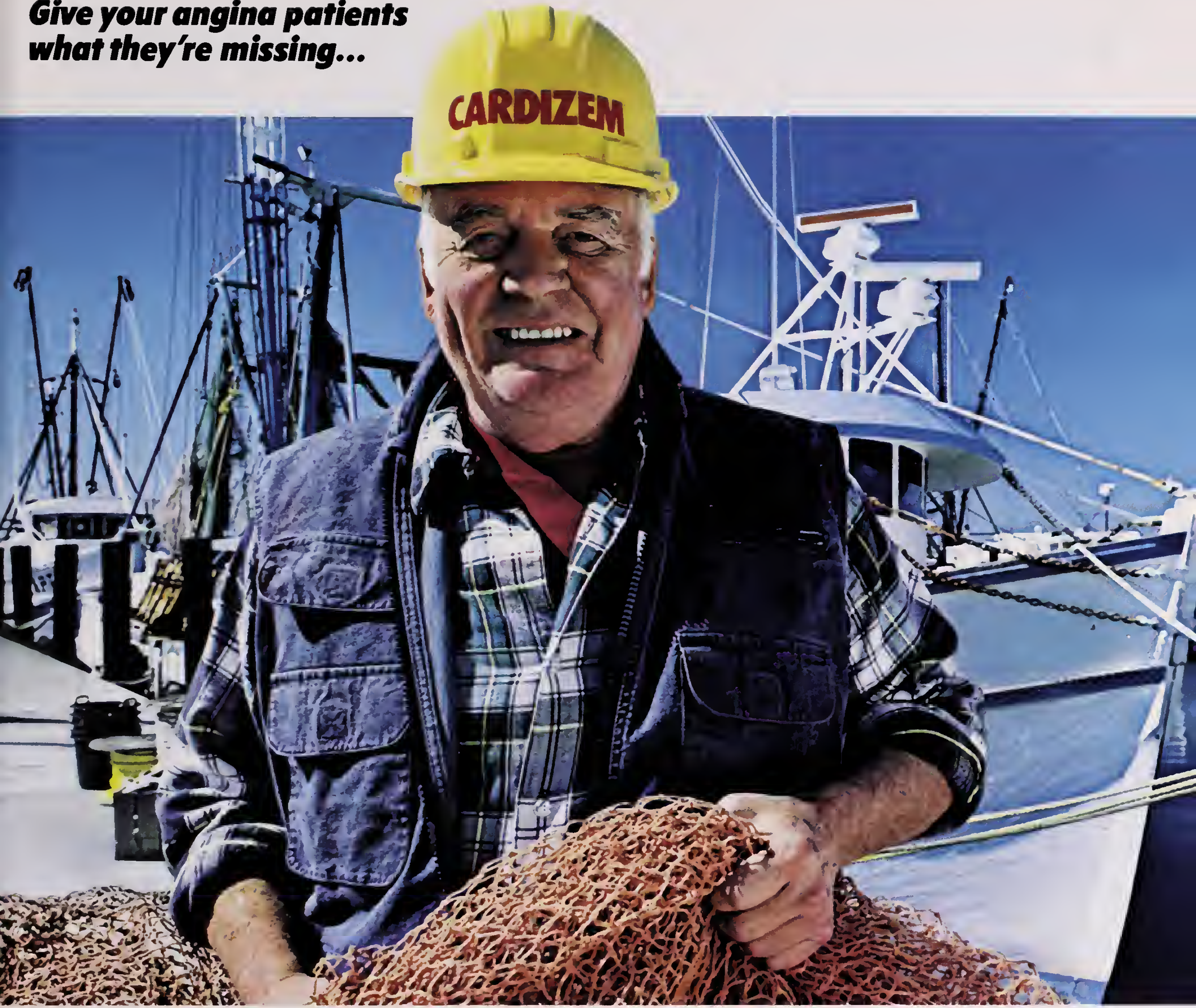

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CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. **Congestive Heart Failure.** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*

   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. **Acute Hepatic Injury.** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women, therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic.	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established. *Issued 9/86*

See complete Professional Use Information before prescribing.

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Peripartum cardiomyopathy: diagnosis and management

R. Fernando Roth, M.D.; William D. Edwards, M.D.#; and Guy S. Reeder, M.D.+*

Peripartum cardiomyopathy is a form of idiopathic cardiomyopathy occurring during the late stages of pregnancy or in the early postpartum period. The diagnosis of this uncommon entity requires exclusion of specific congenital or acquired cardiac disorders. Medical therapy in the gravid patient must be tailored to avoid drugs potentially harmful to the fetus. Although recovery is usual, recurrence has been documented with subsequent pregnancy, and future pregnancies should be discouraged. Medically refractory patients are candidates for cardiac transplantation.

Cardiovascular disease is the fourth leading cause of maternal mortality and the most common nonobstetric cause of death during pregnancy.[1] Abnormalities of the heart may first become evident during pregnancy and represent an important clinical problem encountered by obstetricians, cardiologists, and general practitioners. This report illustrates the course of a patient with peripartum cardiomyopathy, an uncommon cause of heart failure during or after pregnancy. Diagnostic criteria include 1) development of cardiac failure during the peripartum period, 2) absence of a determinable etiology for the cardiac failure, 3) a dilated, poorly contractile myocardium, and 4) absence of demonstrable heart disease prior to the last month of pregnancy.[2]

Case Report

A 30-year-old woman delivered her third healthy child after an uncomplicated full-term pregnancy. Three months later she developed dyspnea and wheezing. Minimal improvement occurred following treatment with albuterol and prednisone, presumably given for the treatment of asthma.

One month later, paroxysmal nocturnal dyspnea, orthopnea, and pedal edema developed. Her local physician noted a new mitral regurgitation murmur, and chest roentgenography showed cardiomegaly with pulmonary venous congestion. She improved with digoxin and furosemide but continued to experience fatigue and was referred to the Mayo Clinic.

The patient denied previous heart disease. She smoked one to two packs of cigarettes per day for 12 years. She had no history of hypertension, diabetes, or hypercholesterolemia. Medications included furosemide 40 mg per day and digoxin 0.25 mg per day.

Her blood pressure was 100/80 mmHg, heart rate 104 per minute, respiratory rate 20 per minute, and temperature 36.5° C. On cardiac examination, the first heart sound was normal; the jugular venous pressure was 9 cm of water; there was moderate increase in the pulmonary component of the second heart sound, and there was a grade 2/6 holosystolic apical murmur. Third and fourth heart sounds were audible. There were no abnormal pulmonary findings. The liver span was 10 cm, and there was no peripheral edema.

Chest roentgenogram showed mild cardiac enlargement (Figure 1). The electrocardiogram showed a normal sinus rhythm of 98/minute and nonspecific T-wave abnormalities. Normal laboratory studies included electrolytes, creatinine, lipids, liver function, thyroid function, serum complement, antinuclear antibody, rheumatoid factor, serum protein electophoresis, and urinalysis.

On echocardiographic examination, the left ventricle was dilated (Figure 2) with global severe hypokinesis and an ejection fraction of 20%. No left ventricular mural thrombus was seen. Endomyocardial biopsy showed myocyte hypertrophy with focal loss of contractile elements and focal sarcoplasmic vacuolizaton (Figure 3). There was no evidence of myocarditis or other infiltrative disorder.

The patient was instructed in a salt-restricted diet, anticoagulated with Warfarin Sodium, and continued on digoxin and furosemide.

She did well until approximately six months later when she again developed increasing dyspnea. Shortly thereafter, the patient died suddenly. At autopsy, the cardiac chambers were enlarged, and histologic findings were compatible with a diagnosis of dilated cardiomyopathy.

Discussion

Normal physiologic cardiovascular changes during pregnancy include increased plasma volume, red cell mass, and cardiac output, and reduced mean arterial pressure and systemic vascular resistance. These normal changes may occasionally result in symptoms and signs mimicking cardiac failure in the nonpregnant patient. Thus, dyspnea can occur due to elevation of the diaphragm with

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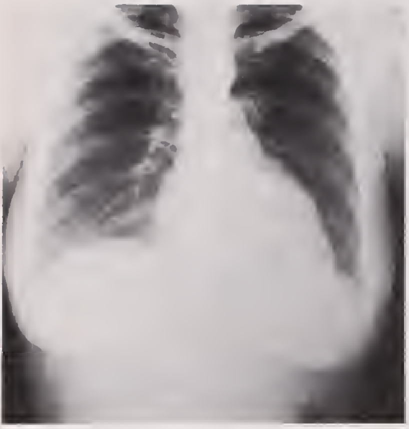

FIGURE 1 — Chest X-ray showing mild cardiomegaly.

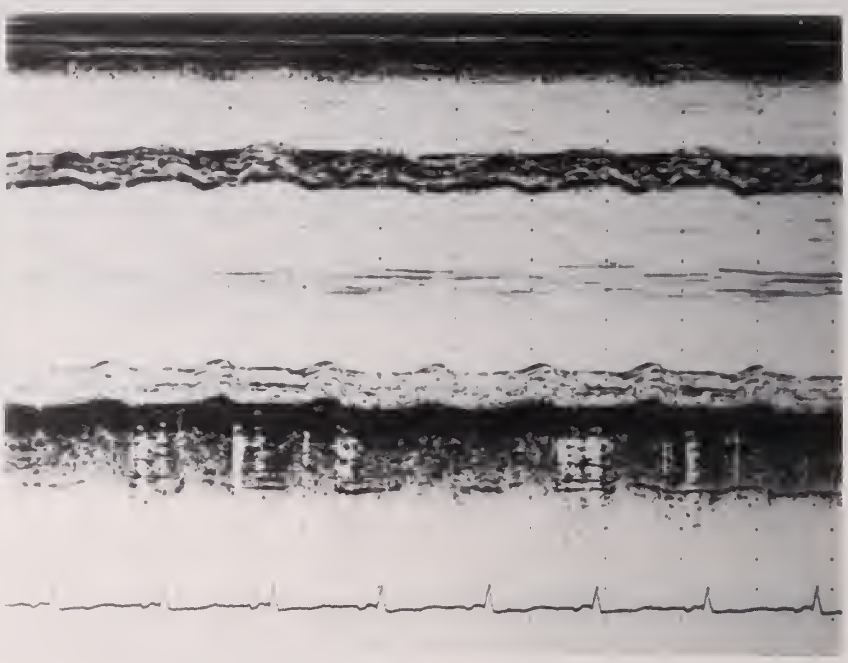

FIGURE 2 — M-mode echocardiogram showing left ventricular dilatation and severe hypokinesis.

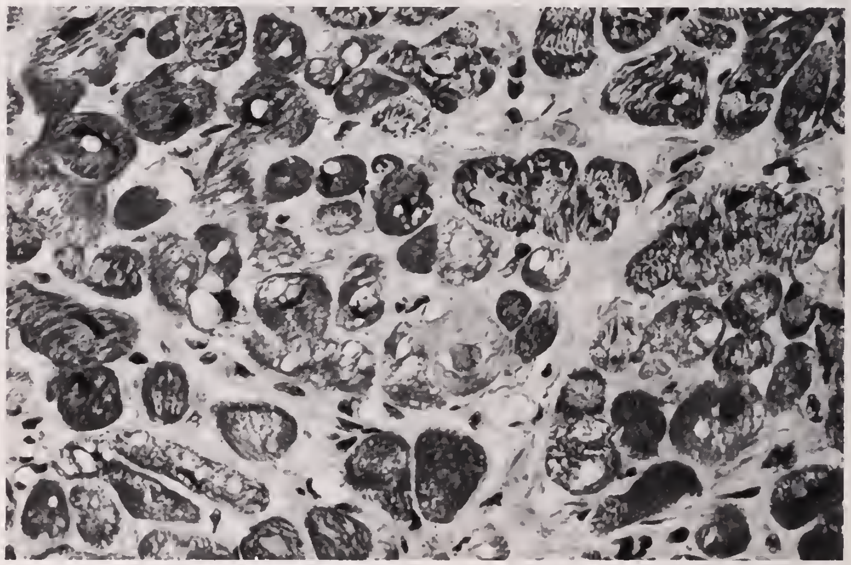

FIGURE 3 — Photomicrograph of tissue from right ventricular endomyocardial biopsy shows myocyte hypertrophy, attenuation, sarcoplasmic vacuolization, and focal loss of contractile elements, and mild interstitial fibrosis. Hematoxylin and eosin, x360.

reduction of lung volumes and may be more noticeable when the patient is recumbent; this should not be mistaken for paroxysmal nocturnal dyspnea. Palpitations may reflect the enhanced left ventricular contractility and increased stroke volume of pregnancy. Peripheral edema, rales, S_3 gallop, and systolic flow murmurs are not uncommon.[3] However, dyspnea severe enough to limit activity, true orthopnea or paroxysmal nocturnal dyspnea, hemoptysis, syncope with exertion, anginal chest pain, or diastolic murmurs almost always indicate organic cardiac disease and require further investigation.[3]

A variety of cardiac conditions may first become manifest during the increased circulatory demands of pregnancy, including unappreciated valvular disease, congenital abnormalities, and acquired cardiac diseases (Table 1). Pulmonary embolization and aortic dissection also occur with increased incidence in the pregnant patient. When organic heart disease is suspected, evaluation should include careful physical examination, electrocardiogram, and echocardiographic examination. The latter allows noninvasive evaluation of chamber size, ventricular function, and assessment of valvular pathology. Normal echocardiographic findings during pregnancy include an increased left ventricular internal dimension and stroke volume and a normal ejection fraction.

In the case presented, the findings were consistent with peripartum cardiomyopathy. In this condition, cardiac failure develops during the late stages of pregnancy or in the early postpartum period, without obvious demonstrable cause. The condition is rare, occurring in approximately one in 3,000 to 4,000 pregnancies and accounting for less than 1% of cardiovascular problems during pregnancy. It has been most often reported in older, black, multiparous women and may be more common in twin pregnancies. Peripartum cardiomyopathy may be more common in tropical or subtropical climates.[4]

The clinical presentation is usually that of left or biventricular

TABLE 1

Causes of heart failure during pregnancy

- **Unappreciated pre-existent valvular disease**
  - Mitral stenosis
  - Mixed rheumatic lesions
- **Acute valvular insufficiency**
  - Endocarditis
  - Aortic dissection
  - Ruptured chordae tendinae
- **Congenital heart disease**
  - Atrial septal defect
  - Ventricular septal defect
  - Coarctation of aorta
  - Patent ductus arteriosis
- **Pulmonary hypertension**
  - Thromboembolic
  - Primary
  - Eisenmenger's syndrome
- **Miscellaneous**
  - Infiltrative cardiomyopathy
  - Inflammatory myocarditis
  - Hypertrophic obstructive cardiomyopathy
  - Peripartum cardiomyopathy

heart failure. Pulmonary and cerebral embolism has been reported in as many as 40% and 13% of patients, respectively.[5] Echocardiographic examination shows dilatation of the left ventricle with global reduction in systolic contractility. The appearance is similar to idiopathic dilated cardiomyopathy,[6] and some believe the two conditions are essentially the same. Left atrial enlargement may occur secondary to mitral regurgitation. Left ventricular mural thrombi may be seen, usually at the cardiac apex. Endomyocardial biopsy has been performed in a limited number of cases; findings are often nonspecific, although myocarditis has been reported.[6,7] When left ventricular wall thickness is increased, endomyocardial biopsy may differentiate between infiltrative disorders and hypertrophy.[8] Because peripartum cardiomyopathy is a diagnosis of exclusion, biopsy is useful to help exclude potentially treatable conditions, such as myocarditis or infiltrative myocardial disease.

The etiology of peripartum cardiomyopathy is unknown, although immunological, viral, and nutritional mechanisms have been proposed.[9] More than one pathogenic mechanism causing myocardial damage may result in what appears to be a single clinical entity. One form of peripartum cardiomyopathy seen in Africa may be due to or exacerbated by volume overload and hypertension, since women ritually eat dried salt cakes during their puerperium.[10] Melvin[7] reported three patients with myocarditis and postpartum cardiomyopathy who appeared to respond to immunosuppressive therapy. Two of the three had an elevated titer of antibody to Coxsackie B_2 virus, suggesting the possible role of prior viral infection. In a more recent report,[7] 4 of 14 patients with peripartum cardiomyopathy had histologic findings suggestive of myocarditis with lymphomononuclear infiltrates and myocytic necrosis. Of these, two died, one improved, and one treated with steroids remained stable. It is tempting to speculate that cardiotropic viral inflammation plays a role, perhaps made more severe by a pregnancy-induced alteration in immune resistance. The anecdotal reports of response to immunosuppressive agents are difficult to interpret in view of the usual spontaneous improvement in this condition.

The clinical course and prognosis of peripartum cardiomyopathy is not well established. The disease is rare, and no large systematic studies have been conducted. In two reports, prognosis was related to the persistence of cardiomegaly. Demakis reported no cardiac mortality in 14 patients whose heart size returned to normal within 6 months of presentation (followed 3 to 21 years, average 10.7 years). In contrast, 11 of 13 patients (85%) who had persistent cardiomegaly after 6 months died over an average 5.4 years follows-up.[2]

In a report by Seftel[11] from South Africa, 45% of patients with peripartum heart failure and clinical evidence of left ventricular enlargement had a reversion of heart size to normal in 3 to 12 months. Mortality in this group was 22% during follow-up, which ranged from 6 to 53 months. In the group with persistent cardiomegaly, mortality was 40% over a 3- to 14-month follow-up period. These data are of limited value, however, because laboratory investigations were restricted to the electrocardiogram and chest X-ray; thus specific forms of cardiac disease may have been present and remained undiagnosed. In a recent review, overall mortality of this disease ranged between 25% and 50%, with death usually occurring in the first three months postpartum (Table 2).[9]

Treatment of the gravid patient with peripartum cardiomyopathy must include special attention to drugs that may be dangerous to the fetus. Bed rest,[12,13] moderate sodium restriction, digitalis, and diuretics administered with caution are the mainstays of treatment. Anticoagulation should be considered in patients with large or mobile intracardiac thrombi or a history of embolism. Chronic anticoagulation is controversial in patients with a dilated, poorly contracting left ventricle but without thrombi visualized on echocardiographic examination. In the pregnant patient, warfarin should be avoided during the first trimester due to teratogenic effects and also at term because of neonatal bleeding complications at delivery. Continuous heparinization, either intravenous or subcutaneous, has been employed during these times. In our patient, the anticipated benefit of chronic anticoagulation was felt to exceed its risk.

The use of steroids and immunosuppressive agents has been advocated on the presumption that an immunological etiology may be implicated. However, this remains speculative, and in the absence of histologic proof of myocardial inflammation, immunosuppressive treatment cannot be justified. Because recurrent cardiac failure has been reported in about 35% of

TABLE 2
Mortality in peripartum cardiomyopathy*

Author	No. of Pts	Mortality (%)
Brockington	50	4
Ghosh	15	7
Davidson	224	11
Talwalker	5	20
Seftel	22	23
Hull	54	26
Pierce	17	29
Burch	34	35
Demakis	27	48
Wilmer	9	56
Woolford	5	80

*Adapted from Homans[9]

patients undergoing a subsequent pregnancy,[12] avoidance of future pregnancies appears prudent. Cardiac transplantation should be considered in patients with severe, medically intractable heart failure.

Summary

In summary, peripartum cardiomyopathy is a condition of unknown cause that presents as a dilated cardiomyopathy in the late stages of pregnancy or the early postpartum period. Although spontaneous improvement may occur, a subset may progress to severe cardiac failure and death. Among survivors, recurrence has been reported with subsequent pregnancy. The diagnosis, as in idiopathic dilated cardiomyopathy, is one of exclusion. Endomyocardial biopsy may be useful to exclude infiltrative disorders, such as amyloidosis and hemochromatosis, and to detect presence of myocarditis. It is currently uncertain whether immunosuppressive treatment of myocarditis is of value. Persistent cardiac enlargement portends a poor prognosis. Patients with intractable cardiac failure are candidates for cardiac transplantation.

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Repair of traumatic aneurysm of the pulmonary artery with arteriovenous fistula

Joseph Fuller, M.D., F.C.C.P.; Terrence C. Clark, M.D., F.C.C.P.#*

Reports of aneurysm or arteriovenous fistulae due to trauma of the pulmonary artery are rare. With increasing use of advanced life support teams and trauma centers, more people will survive severe damage to their lungs and pulmonary vasculature and some of these patients may develop traumatic aneurysms or arteriovenous fistulae. If possible, these lesions should be repaired without resecting functional lung tissue. This report describes a case where this was done.

Case Report

A 27-year-old male was referred to The Duluth Clinic because his previous outstanding athletic ability had become limited by dyspnea and tightness across the anterior chest. Eleven months previously, he was shot in the right chest with a 38-caliber hollow point bullet, which entered his chest near the right nipple and exited medial to the right scapula. His treatment at another hospital included closed-chest tube drainage and transfusion with 6000 cc of blood. His recovery from the incident seemed satisfactory.

At the time of referral, his physical examination was normal except for scars on the right chest. Chest X-ray revealed scattered small metallic fragments in the right upper lung field, but was otherwise normal. The hemoglobin was 18.2 grams/dl and P_aO_2 was 67 Torr breathing ambient air at rest. Spirometry before and after bronchodilator inhalation was normal. Because of the relative arterial hypoxemia and polycythemia in this athlete, it was felt that an arteriovenous communication was likely present. Digital subtraction angiography (Figure 1) revealed a 3 cm aneurysm on the lateral wall of the right pulmonary artery distal to the branches of the apical and posterior segments of the upper lobe. Pulmonary angiography and quantitative physiologic shunt studies were considered but deemed unnecessary. Thoracotomy was recommended.

The findings at surgery are illustrated in the diagram (Figure 2). The aneurysm was found in the oblique fissure. It was located opposite the segmental arteries to the middle lobe and just above the arterial branch to the superior segment of the lower lobe. It arose from the posterior lateral wall of the pulmonary artery and involved a branch supplying part of the posterior segment of the upper lobe. The vein involved in the aneurysm was draining part of the superior segment of the lower lobe into the superior pulmonary vein. This vein was described in 1948 by Boyden and Scannel[1] in 54% of their dissections and was named VX6. In addition, there were many circoid blood vessels entering the sac.

After sacrificing the vein, VX6 and the arterial branch to the posterior segment of the upper lobe, it was possible to dissect the aneurysmal sac, place a clamp on it, and repair the wall of the pulmonary artery. Bleeding from the many small vessels present adjacent to the aneurysm resulted in an estimated blood loss of 2000 cc.

Postoperatively, the patient developed a venous infarct in the superior segment of the right lower lobe, which subsequently became infected but healed with clindamycin and penicillin antibiotic therapy.

By four months postoperatively, the patient felt his athletic ability was restored, and he was competing successfully in downhill and cross-country skiing. Arterial blood gases then revealed a P_aO_2 of 91 Torr breathing ambient air at rest, and digital subtraction angiography demonstrated a normal contour of the right pulmonary artery (Figure 3). Chest X-ray two years after surgery revealed no loss of volume or significant scarring of the right lung, and the right pulmonary artery retains a normal contour.

Discussion

One might question the presence of an arteriovenous communication in this patient because it was not documented by conventional pulmonary angiography or formal shunt studies. However, the finding at surgery of direct involvement of a branch of a pulmonary vein in the aneurysm and the change in arterial P_aO_2 from a preoperative level of 61 Torr to a postoperative value of 91 Torr suggests some arteriovenous communication was present.

Reviewing the literature, we found eight previously reported cases of traumatic pulmonary artery aneurysms and/or arteriovenous fistulae that were repaired.[2-6] Five were treated by lobectomy and one with a lungulectomy. Symbas et al.[5] ligated a traumatic fistula in the posterior basal segment of the right lower lobe with multiple hemostatic clips. Arom and Lyons[3] opened the right pulmonary artery and sutured

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a saccular fistual between the right pulmonary and the superior pulmonary vein.

Because of the location of the aneurysm in the case reported here, a pneumonectomy would have been required if repair of the artery had not been possible. Although a portion of the superior segment was damaged due to venous infarction, the aneurysm was repaired without resection of lung tissue and the functional result has been excellent.

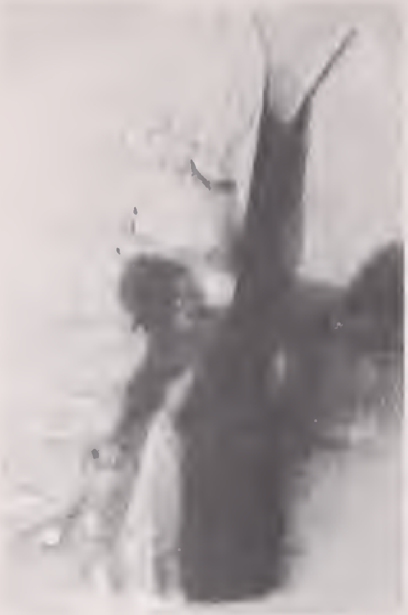

FIGURE 1 - Digital subtraction angiography demonstrating traumatic aneurysm of pulmonary artery.

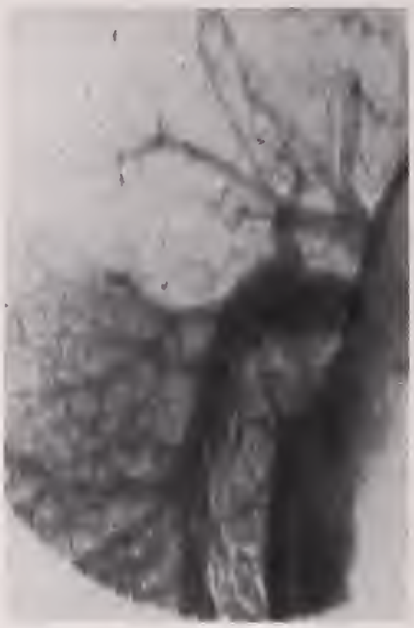

FIGURE 3 - Postoperative digital subtraction angiography showing normal pulmonary artery.

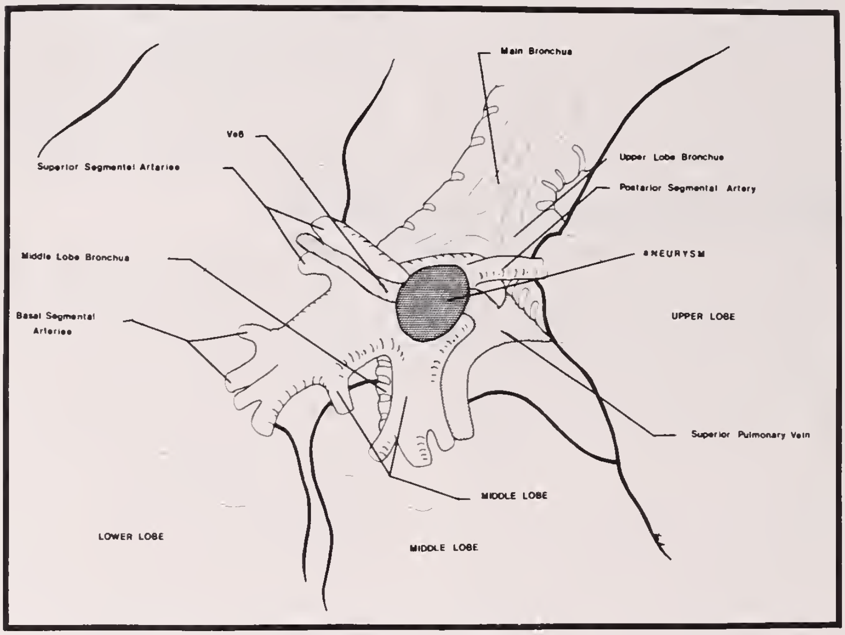
Main Bronchus
V6
Superior Segmental Arteries
Upper Lobe Bronchus
Posterior Segmental Artery
Middle Lobe Bronchus
ANEURYSM
Basal Segmental Arteries
UPPER LOBE
Superior Pulmonary Vein
MIDDLE LOBE
LOWER LOBE
MIDDLE LOBE

FIGURE 2 - Diagram indicating findings at surgery.

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Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

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DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

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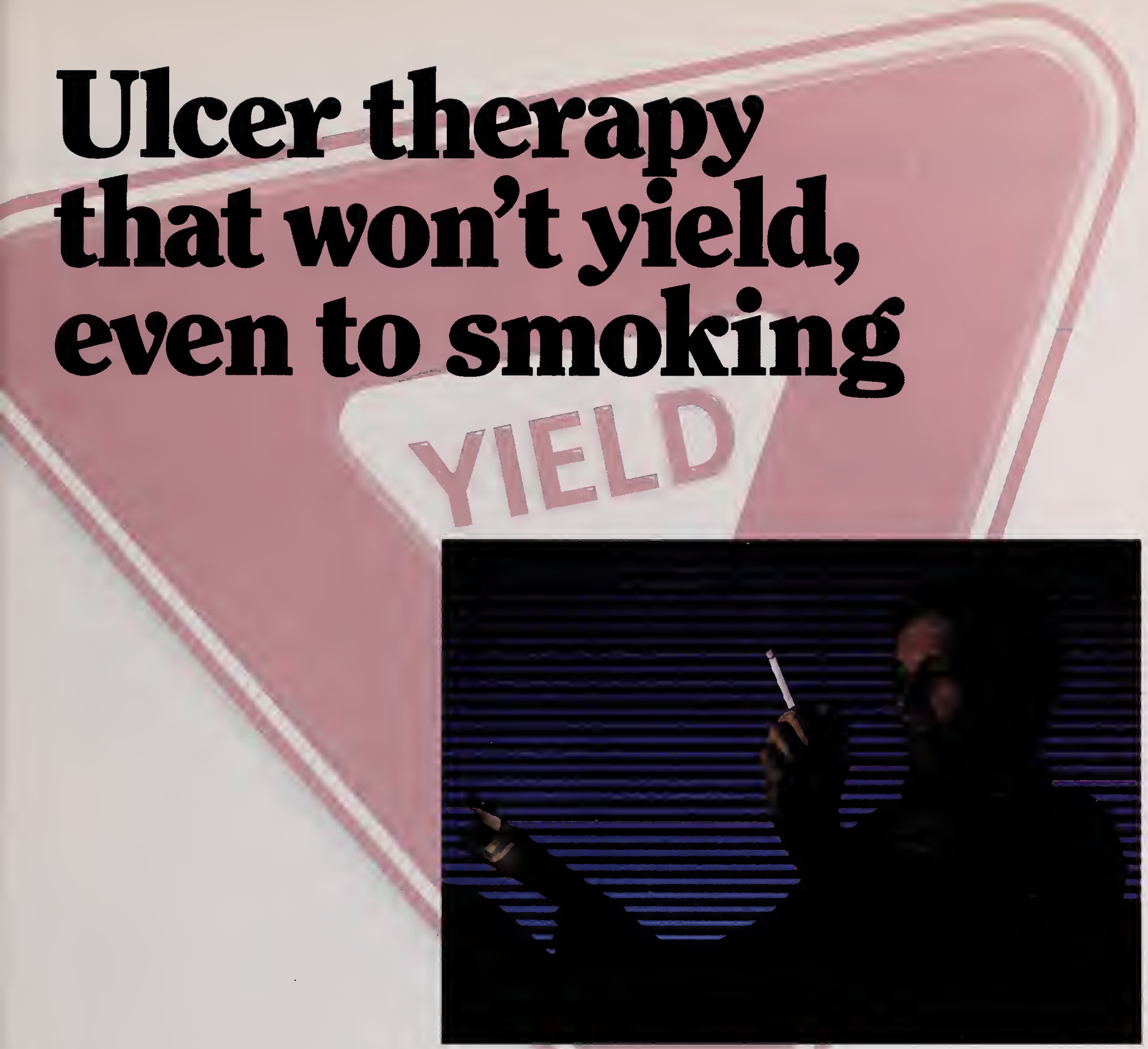

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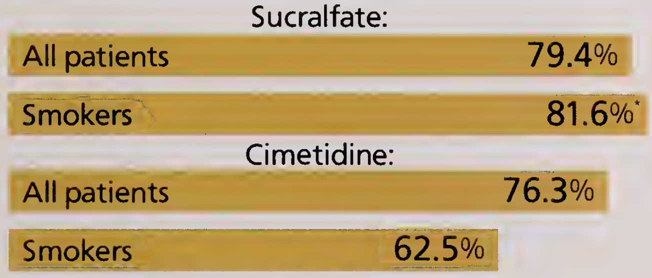

*Significantly greater than cimetidine smoker group ($P < .05$).

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Three independent, case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4 5 to 13 9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses
2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY
The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing, in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy, or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0 3 mg, 0 625 mg, 0 9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0 625 mg conjugated estrogens per gram

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions) Osteoporosis (abnormally low bone mass). Atrophic vaginitis. Kraurosis vulvae. Female castration

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae.

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes Whether this will provide protection from endometrial carcinoma has not been clearly established There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3 Known or suspected pregnancy (see Boxed Warning). 4 Undiagnosed abnormal genital bleeding 5 Active thrombophlebitis or thromboembolic disorders 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning). However, a recent large, case-controlled study indicated no increase in risk of breast cancer in postmenopausal women. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism, and thrombophlebitis When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed Conditions influenced by fluid retention, such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed Pre-existing uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not yet complete If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a Increased sulfobromophthalein retention.

b Increased prothrombin and factors VII, VIII, IX, and X, decreased antithrombin 3, increased norepinephrine-induced platelet aggregability

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T_4 by column, or T_4 by radioimmunoassay Free T_3 resin uptake is decreased, reflecting the elevated TBG; free T_4 concentration is unaltered

d Impaired glucose tolerance.

e Decreased pregnanediol excretion.

f. Reduced response to metyrapone test

g Reduced serum folate concentration.

h Increased serum triglyceride and phospholipid concentration

As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk

Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens

ADVERSE REACTIONS: The following have been reported with estrogenic therapy including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea, premenstrual-like syndrome, amenorrhea during and after treatment, increase in size of uterine fibromyomata; vaginal candidiasis, change in cervical erosion and in degree of cervical secretion, cystitis-like syndrome, tenderness, enlargement, secretion (of breasts); nausea, vomiting, abdominal cramps, bloating, cholestatic jaundice, chloasma or melasma which may persist when drug is discontinued, erythema multiforme, erythema nodosum, hemorrhagic eruption, loss of scalp hair; hirsutism, steepening of corneal curvature; intolerance to contact lenses; headache, migraine, dizziness, mental depression, chorea, increase or decrease in weight; reduced carbohydrate tolerance, aggravation of porphyria; edema, changes in libido

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females

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1 *Given cyclically for short-term use only* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0 3 mg to 1.25 mg or more daily) The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals

2. *Given cyclically:* Osteoporosis. Female castration Osteoporosis —0 625 mg daily Administration should be cyclic (eg, three weeks on and one week off). Female castration—1 25 mg daily, cyclically Adjust upward or downward according to response of the patient For maintenance, adjust dosage to lowest level that will provide effective control.

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

PREMARIN® Brand of conjugated estrogens Vaginal Cream

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The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three- to six-month intervals

Usual dosage range: 2 g to 4 g daily, intravaginally, depending on the severity of the condition

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

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Testicular infarction associated with incarcerated inguinal hernia

*William G. Gamble, M.D., F.A.C.S.**; Gary A. Keller, M.D.**;*

One complication of an incarcerated inguinal hernia in infants is infarction of the ipsilateral testis. Although this complication is not rare, most surgeons encounter it infrequently and unexpectedly at the time of surgery. In spite of numerous case reports, clear guidelines regarding the intraoperative management (i.e., orchiectomy versus replacement of the infarcted testis into the scrotum) based on large series are not available. Recent clinical and experimental reports describing abnormal sperm analyses in patients with testicular torsion who underwent detorsion suggest that the "salvaged" testis may interfere with testicular function of the contralateral testis. These studies support ipsilateral orchiectomy as the appropriate management for this complication. This article presents a case, a review of the literature, and recommendations for management.

Ipsilateral testicular infarction from acute venous occlusion is an uncommon but well-documented complication of incarcerated inguinal hernia in children. In a recent review, Cox[1] stressed the importance of visualizing the ipsilateral testicle during operations for incarcerated inguinal hernias in childhood because of the significant occurrence of ischemic necrosis with subsequent atrophy. In light of recent clinical and experimental studies, the management of testicular infarction associated with incarcerated inguinal hernia should be reassessed. Surgeons may encounter this complication for the first time during the course of emergency surgery. Therefore, it is necessary to be familiar with its incidence, etiology, and appropriate management.

Case Report

RW, a previously healthy two-year-old white boy, presented in the emergency room with a 12-hour history of colicky abdominal pain, lethargy, and nausea. He had vomited eight times during the preceding 12 hours and had not passed stool for more than 24 hours. He was afebrile with a pulse of 116 and a blood pressure of 90/48. Significant physical findings included a distended, nontender abdomen with increased bowel sounds. There was a tender ovoid 3 x 4 cm mass in the right groin, consistent with an incarcerated inguinal hernia. A small area of bluish discoloration was noted high in the right scrotum and was thought to represent an area of ecchymoses outside the inguinal canal.

Because of the prolonged period of incarceration and the risk of strangulation, nonoperative reduction was not attempted. Following a brief period of rehydration, surgical exploration was performed through a standard groin incision. An indirect inguinal hernia with incarcerated small bowel was encountered. The bowel was congested but not infarcted and was reduced. A high ligation of the sac was performed. The vas deferens and testicular artery and veins appeared normal. The testis was brought into the wound and was found to be infarcted. It was blue-black and did not bleed when the tunica albuginea and testicular parenchyma were incised. An orchiectomy was performed and the patient discharged the following day.

In retrospect, the bluish discoloration noted high in the right scrotum prior to surgery undoubtedly represented the infarcted testis. This bluish discoloration has been previously described as the "blue dot sign."

Discussion

Ipsilateral testicular infarction associated with incarcerated inguinal hernia was first reported by Golden[2] in 1934. Since that time, numerous cases and limited series have been reported. A summary of these reports, as well as the eventual outcome with respect to testicular size, is presented in Table 1. The incidence of this complication ranges from 5% to 34% of children who present with incarcerated inguinal hernia, as shown in Table 2. Snyder[16] reported a 15% incidence of testicular atrophy following repair of incarcerated inguinal hernia, suggesting that this complication may occur more frequently than it is recognized. Most patients with testicular infarction secondary to incarcerated inguinal hernia are less than one year old. This complication can occur in older patients, as documented by Friedman[14] and by our case.

The initial mechanism of testicular infarction is venous obstruction of the testis caused by dilated segments of bowel in the inguinal canal as described by Hill et al.[10] As the contents of the canal become increasingly engorged, arterial inflow may be secondarily impaired. Fowler and Stephens[17] have previously demonstrated that interruption of blood flow through the testicular artery and vein does not result in testicular necrosis. Therefore, impairment of blood flow to the testes through other routes, including vessels in the cre-

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TABLE 1

Tabulation of reports of testicular infarction associated with incarcerated inguinal hernia

Author	Year	# Cases	Procedure	Outcome*
Golden[1]	1934	1	Herniorrhaphy & orchiectomy	No follow-up
Cedermark[2]	1936	1	Herniorrhaphy & orchiectomy	2 yrs. atrophy of testis
Rosenblatt[3]	1939	2	Herniorrhaphy & orchiectomy	1 No f/u
				1 died of small bowel obstruction
Potts[4]	1950	6	5 Herniorrhaphy	3 normal to palpation
			1 Herniorrhaphy & orchiectomy	2 atrophic
Wiklander[2]	1951	12	11 Herniorrhaphy	3 atrophic
			1 herniorrhaphy & orchiectomy	2 smaller-than-normal testes
				5 normal
				1 lost to follow-up
DeBoer[6]	1957	5	4 Herniorrhaphy	4 atrophic
			1 herniorrhaphy & orchiectomy	
Sloman[7]	1957	3	3 Herniorrhaphy	3 atrophic
Sturdy[8]	1960	1	Herniorrhaphy & orchiectomy	
Hill[9]	1961	4	1 Herniorrhaphy & orchiectomy	1 atrophic
			2 herniorrhaphy & tunica albuginea incision	1 nearly normal
			1 resection gangrenous bowel herniorrhaphy & orchiectomy	
Ross[10]	1969	3	2 Herniorrhaphy	1 complete atrophy
			1 herniorrhaphy & orchiectomy	1 lost to follow-up
Hanna[11]	1972	1	Herniorrhaphy & orchiectomy	
McGurk[12]	1978	3	3 Herniorrhaphy & orchiectomy	
Friedman[13]	1979	25	Herniorrhaphy & tunica albuginea incision	No follow-up
Murdoch[14]	1979	5	5 Herniorrhaphy	4 normal testes
				1 lost to follow-up

*Refers to patients who did not have orchiectomy.

TABLE 2

Incidence of testicular infarction in infants with incarcerated inguinal hernias

Author	Year	No. of patients with incarcerated hernias	No. of patients with testicular infarction	Percent
Wiklander[5]	1951	111	12	11%
DeBoer[6]	1957	65	5	7%
Sloman[7]	1958	57	8	14%
Friedman[13]	1979	73	25	34%
Murdoch[14]	1979	120	6	5%

masteric layer and the vessels accompanying the vas deferens, must contribute to the observed testicular infarction.

The onset of ischemia in this clinical setting is difficult to establish, making it virtually impossible to determine a safe period of testicular ischemia. The appearance of the incarcerated hernia, which causes the patient to present to the surgeon, may not coincide with the onset of testicular ischemia. In patients with testicular torsion, nonviable testes have been observed as early as four hours after the onset of symptoms. Any period of observation is associated with significant risk with respect to testicular infarction. In addition, the extent of ischemia of the incarcerated intestine is of no value as an index of the risk of testicular infarction or the viability of the ischemic testis. In the 35 reported cases of testicular infarction associated with incarcerated inguinal hernia, only three patients required resection of strangulated bowel.

Although testicular infarction is a well-recognized complication of incarcerated inguinal hernia, few authors have suggested specific guidelines for the operative management of the infarcted testis. The controversy focuses on the choice between removing a testis of questionable viability and leaving it in place. In 1939, Rosenblatt proposed that any infarcted testis should be removed.[4] Later, Hill suggested that such testes should be treated by incision of the tunica albuginea to allow for swelling, and by replacement into the scrotum.[10] He reported a 20% to 50% testicular survival rate defined by absence of significant atrophy of the affected testis. In 1972, Hanna favored the use of frozen section to determine viability at the time of operation.[12] The most recently published recommendation by Murdoch is to replace the infarcted testis into the scrotum because the testis may not undergo atrophy in spite of its infarcted appearance.[15]

The dilemma surrounding the surgical management of the ipsilateral infarcted testis, in this setting, is a result of several factors. First, because of the low incidence of this complication, few surgeons have extensive experience in managing the problem. In addition, at surgery, it is difficult to assess testicular viability. In the majority of cases in which the testicle was left in place without consequent measurable atrophy, no biopsy was obtained to document the extent of necrosis. Incision of the testis to assess parenchymal bleeding may not represent an absolute test for viability because it may merely document restored blood flow rather than the potential to recover from an ischemic insult. The option of assessing the viability by frozen section is attractive, but the majority of these patients will be treated on an emergency basis, making this option somewhat impractical.

An important consideration in the assessment of operative management of the infarcted testis is the method of evaluating the effect of leaving a testis of questionable viability in the scrotum. If the result is best measured by the presence of a palpable testis or mass in the scrotum, then the arguments of Hill[10] and Murdoch[14] are defendable. However, even when this criterion is used, the majority of patients (17/30) who have been followed for more than one year have experienced complete atrophy or sloughing of their affected testis (Table 1). Some reports describe significant salvage by replacing testes with both "moderate" and "pronounced" degrees of infarction. These reports do not specify whether the testes found to be normal on follow-up were in patients who had had moderate or pronounced degrees of infarction.[6]

Undoubtedly, a functional assay of testicular salvage is more appropriate than gross morphometric evaluation. No studies have been published regarding testicular function in this group of patients. Useful information is provided in recent reports by Krarup[18] and Bartch et al.[19] in a large series of patients with ipsilateral testicular torsion. These authors have documented a significant decrease in testicular function in patients who have undergone untwisting and orchiopexy. Bartch et al. demonstrated a linear correlation between the size of the testis several years after untwisting and the time interval between the onset of symptoms and operative untwisting. Of 11 patients whose period of ischemia was eight hours or greater, 11 had at least 40% atrophy of the testicular torsion while 8 had more than 50% atrophy. In addition, 9 of 16 patients who had an ischemic interval of four hours or more had abnormal sperm analyses several years later, while 7 of 10 patients had abnormal studies following 12 hours of ischemia. Of particular interest in this study was the observation that in the three patients studied who had had an orchiectomy due to a prolonged period of ischemia, all had normal sperm analyses.

These studies raised the possibility that the presence of an abnormal testis might alter or interfere with the function of the contralateral normal testis. Nagler and White[20] pursued this issue with a series of studies involving rats that had undergone a 24-hour period of ipsilateral testicular torsion. Rats whose testes were derotated and left in place showed significant hypospermia and tubular atrophy of the contralateral "normal" testis. Derotation followed by orchiectomy resulted in significantly fewer changes in the contralateral testis. Furthermore, in splenectomized anti-lymphocyte globulin treated rats, this effect was completely ablated when the untwisted testis was left in place. Nagler and White hypothesized that exposure of the host to testicular antigens, following unilateral testicular ischemia, induced an autoimmune-mediated injury of the contralateral testis. This hypothesis is supported by several studies in which antigens, present in testicular homogenates, have been demonstrated to mediate autoimmune destruction of testicular tissue, as described by Freund.[21] It is possible then that "salvage" of an infarcted testis in patients with an incarcerated inguinal hernia may eventually result in a palpable mass in the scrotum but may also seriously interfere with total testicular function by initiating autoimmune changes in the contralateral testis. Sheldon,[22] in a recent review of testicular torsion, argues that the number of clinical cases is small and that further data are required before a definitive recommendation can be made.

Summary

Testicular infarction, although rarely diagnosed preoperatively, is a well-documented complication of incarcerated inguinal hernia in infants. It is difficult to judge the period of testicular ischemia because the process may be overshadowed by or be indistinguishable from the symptoms of the incarcerated hernia. Considering the long-term effect of even brief periods of ischemia on testicular morphology and function, it may be unwise to prolong nonoperative attempts at reducing an incarcerated inguinal hernia. When confronted with a testis of questionable viability, the surgeon must choose between orchiectomy and replacement of the testis into the scrotum. Objective and reliable means of predicting the restoration of function of the involved testis are not available. Recent reports in the surgical literature suggest that most patients whose grossly infarcted testis is replaced into the scrotum will have a palpable testis years later. More current investigations, using testicular function rather than morphology as an endpoint, support ipsilateral orchiectomy as the treatment of choice for the infarcted testis.

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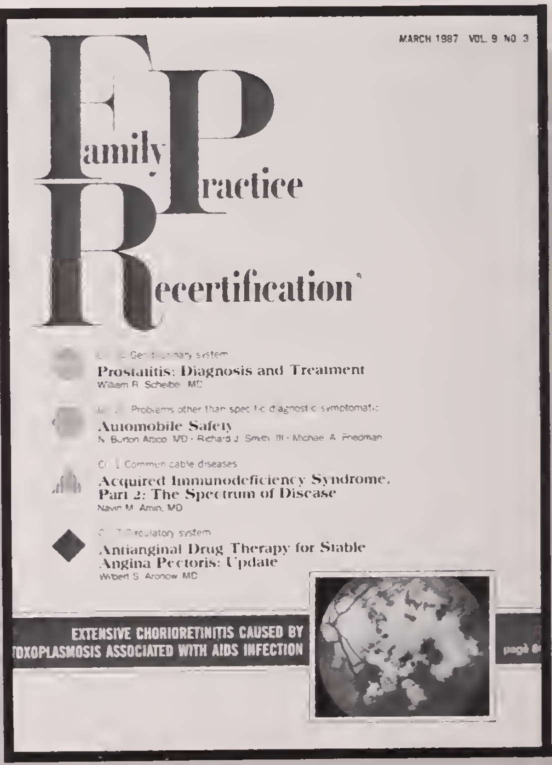

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Diet and arthritis

Stephen L. Hadley, M.D.[*]

For years physicians have steadfastly adhered to the belief that dietary manipulation has little or no impact on the outcome of most chronic diseases. This doctrine may be in the process of undergoing a dramatic reversal. Nowhere does this appear more likely than in the diseases of arteriosclerotic coronary artery disease and arthritis. This review considers the connections between diet and arthritis.

Physicians have, of course, understood for years that limiting the intake of alcohol and foods high in purine content could diminish the frequency of acute gouty attacks. This has been the only exception to the longstanding principle that dietary manipulation has no impact on arthritis and its related disorders. As recently as 1976, the Arthritis Foundation, in its publication, *The Truth about Diet and Arthritis*, commented, "The possible relationship between diet and arthritis has been thoroughly and scientifically studied. The simple proven fact is: No food has anything to do with causing arthritis and no food is effective in treating or 'curing' it."

However, it had been observed for years that specific foods seemed to aggravate arthritic symptoms in some individuals. Zussman described 1,000 consecutive adults with allergic complaints; of these, 20% had associated rheumatic complaints. He suggested that musculoskeletal complaints could be precipitated with ingestion of certain foods.[1] An extensive literature review from 1917 through 1972 by Roe,[2] concluded that "food allergy as a cause of arthritis, pain, or arthralgia and swelling occurs not infrequently." Further credence to the impact of diet on arthritis has been provided in two recent reviews.[3,4] Panush[3] suggests that there are two mechanisms by which diet might affect rheumatic diseases. The first of these is food hypersensitivity (allergy) and the second is nutritional modulation of immune system function. Supporting the food allergy concept have been various reports suggesting that rheumatoid arthritis may be exacerbated by sodium nitrate, milk and/or cheese, tartrazine, wheat, corn, beef, alternaria, dust, smoke, or petrochemicals. Exacerbation of SLE symptoms has been seen with hydrazine, nitrate, and alfalfa. Black walnuts have been associated with aggravation of Behcet's syndrome. Adequate experimental evidence also substantiates the effects of nutrition on the immune response. Protein malnutrition may decrease antibody production and the development of antibody-forming cells. It also increases allograft rejection, delayed hypersensitivity response, in-vitro cellular responsiveness, and macrophage inhibition factor production. A number of studies have found that dietary manipulation alters the course of the systemic lupus erythematosus-like autoimmune disease of NZB/NZW F1 hybrid mice.

Information is also accumulating regarding the use of vitamins and minerals and their impact on rheumatic disease. Copper has been studied extensively and currently is of doubtful importance with regard to the rheumatic diseases. Zinc may have anti-inflammatory effects in vitro and appears to assist cellular immune responsiveness. In vivo study results have, however, been variable, and for the most part indicate no consistent effect. For years, L-histidine, an amino acid supplement available over the counter, has been reported to have a positive impact on rheumatoid arthritis. At least one study[5] suggested that it may be of some benefit in very active and prolonged rheumatoid arthritis in people older than age 45. Although ascorbic acid (vitamin C) has been found to have immuno-enhancing effects, no clinical benefit has been observed in rheumatoid arthritis. Vitamins A, E, and pyridoxine have been studied in animals, but more human studies are needed before any conclusions can be drawn.

Of particular interest lately has been the possible effect of fish oil products on the inflammatory process associated with rheumatic diseases. Numerous reports in both the lay and medical literature extol the possible value of this dietary supplement in the prevention of atherosclerotic disease and have generated interest in the possible use of these products to treat arthritis. Cold-water fish such as salmon, mackerel, and sardines contain a large amount of eicosapentaenoic acid (EPA). When significant amounts of EPA are introduced into the diet, its content in neutrophils and monocytes increases significantly. Cells rich in EPA appear to preferentially form leukotrienes and prostaglandins that are less active in the inflammatory process than are the leukotrienes and prostaglandins derived from cells containing arachidonic acid (AA).

AA is derived from diets high in polyunsaturated vegetable oils, such as corn and safflower.

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[*] Rheumatologist in private practice, affiliated with The Duluth Clinic, Ltd., Duluth, MN.

Following action by lipoxygenase and cyclo-oxygenase, AA is converted into PGE_2 (which facilitates platelet aggregation and enhances pain development), PGF_2 (constricts capacitance vessels), PGI_2 (inhibits platelet aggregation and relaxes arterial muscles leading to edema), and thromboxane A2 (enhances platelet aggregation). A diet rich in EPA has been shown to significantly reduce death from the immunologically mediated glomerulonephritis developed by NZB/NZW F1 mice.[6] Caution must still be exercised in prescribing fish oil or other products high in EPA, for despite its possible anti-inflammatory effects, there may also be untoward effects on platelet aggregation that could lead to serious bleeding.

Thus, although human studies are lacking, it appears clear that dietary factors do play a role in at least some of the rheumatic diseases. Certainly further investigation of this intriguing relationship is warranted and is currently ongoing. In the meantime, physicians should withhold specific recommendations for dietary therapy in the rheumatic diseases.

References

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5. Pinals RS, Harris ED, Burnett JB, Gerber DA: Treatment of rheumatoid arthritis with L-histidine: A randomized placebo-controlled, double-blind trial. J of Rheu 4:414-419, 1977.
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Fall-Spring Conference Schedule

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1987	
October 9	Chemical Exposures: Emergency Response & Management, St. Paul
October 22-24	Fourth Annual Trauma Course, St. Paul
November 6	Chemical Exposures: Emergency Response & Management, St. Paul
November 6-7	Communication & Relationship Patterns Between Mothers and Daughters, St. Paul
November 12-14	Clinical Strategies in Primary Care, St. Paul
November 19-20	CNS Disease and Trauma, St. Paul
December 3-5	Annual Cardiopulmonary Medicine Update, St. Paul
1988	
February 18-19	Current Concepts in Perinatal Medicine, St. Paul
March 2-4	Sixth Annual Critical Care Conference, St. Paul
March 17-18	Family Practice Today, St. Paul
March 25	Ninth Annual Occupational Medicine Update, St. Paul
April 7-8	Ob/Gyn Update, St. Paul

Information and registration: Continuing Medical Education, St. Paul-Ramsey Medical Center,
640 Jackson Street, St. Paul, Minnesota 55101 • 612/221-3992

CME

medicalegal brief

Risk Management in Practice

Maintaining Defensible Medical Records (Part Two)

MMIE Risk Management Committee
Paul S. Sanders, M.D., Chairperson

Hospital Charting Hazards to Avoid

A carelessly prepared or incomplete hospital chart can endanger the patient and compromise the defense of a malpractice claim. Plaintiffs' attorneys review medical records carefully to find errors, omissions, or inconsistencies that they can use to raise questions about the care provided to the patient. Physicians should avoid the following charting problems, which have often been responsible for adverse results in what might otherwise have been medically defensible malpractice lawsuits.

Late reports or progress notes: A progress note added to a chart days or weeks after a visit may be of little value to other physicians involved in the patient's care. Late or absent progress notes are a handicap to the defense in malpractice litigation. In court, the plaintiff will challenge the credibility of reports dictated after a problem occurred.

Illegible writing: Any unreadable entry may be misinterpreted or overlooked. Orders may not be carried out or can be delayed and result in patient injury if the physician's writing cannot be read. Carelessly written medication orders are responsible for numerous patient injuries and malpractice actions. Illegible progress notes may require a physician to give a deposition or appear at a trial to interpret the notes.

Alterations: The medical record should never be deliberately altered. Errors should be crossed out with a single line so that they can still be read and the date and the signature or initials of the person making the change should be noted. No changes should be made in the medical record after notice of a claim has been received. Physicians who discover errors after they have been sued or threatened with a claim should discuss the errors with their liability insurance carrier or defense attorney.

Criticism of others: The patient's medical chart is not the place to note criticism of the treatment rendered by other physicians or by nurses. A note not intended to be critical may appear accusatory because of poor word choice. One such case resulted in litigation: A surgeon, referring to his open reduction for a non-union, noted, "Open reduction was done to repair an obviously defective closed reduction by emergency physician." The surgeon intended to say that the closed reduction, although done properly, was not successful. His note was the patient's incentive for a malpractice action against the emergency physician.

Subjective remarks: Objective language should always be used in the chart. A note that says the patient "uses excessive alcohol," without an indication of the actual amount of alcohol intake, may be subject to criticism and dispute. Note, too, the distinction between describing the patient as "a malingerer," and the more objective note: "I am unable to find any objective explanation for patient's subjective complaints."

Omission of sensitive information: Potentially embarrassing entries about problems such as drug or alcohol abuse, venereal disease, or emotional problems should not be omitted from the chart. While such omissions may not be significant in some cases, in others their omission may affect the choice of treatment, use of medication, or administration of anesthesia. When the omission of "sensitive" history or diagnoses disposes the patient to an injury by other doctors or nurses unaware of the problems, the physician responsible for the omissions may be held liable.

Failure to read nurses' notes: The reasons given by some physicians for not reading hospital nurses' notes include, "They're not informative"; "I get all the information I need when I make rounds"; "They're filled with unimportant trivia." Whether or not such criticisms are valid, it is a fact that malpractice plaintiffs' attorneys carefully study the hospital chart, looking for discrepancies between the physicians' notes and the nurses' notes. Experience has shown that these attorneys often find significant discrepancies that cannot be explained away at the time of trial. If the quality of nurses' notes is unacceptable, physicians should work with the nursing administration to develop minimum guidelines for what nurses' notes should include. An open dialogue between nurses and physicians will help improve the quality of the written notes to provide physicians with the kind of information they need about the patient's progress during the 23-plus hours each day that their patients are entrusted exclusively to the nursing staff.

Note: Articles in this series are not intended to be legal advice. Readers should obtain specific legal advice from a qualified attorney.

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings or for information on future medical meetings and CME courses at the state and national level, please contact the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

SEPTEMBER 1987

10-11 **Hospital Nutrition Support** CME, University of Minnesota Medical School; Holiday Inn Downtown, 1313 Nicollet Avenue, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-11 **Pediatric Emergency Medicine: The First 30 Minutes—Comprehensive Diagnosis and Management of Pediatric Emergencies** Minneapolis Children's Medical Center; Minneapolis Children's Medical Center, 2525 Chicago Avenue South, Minneapolis, Minnesota. CONTACT: Kathy Ingerson, Medical Education Coordinator, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

10-12 **Teaching Geriatric Medicine** CME, University of Minnesota Medical School; Radisson University Hotel, 615 Washington Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

10-25 **Passage to India and Nepal** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

11-13 **O'Leary Meeting - Mayo Clinic** Minnesota Dermatological Society; Mayo Clinic, Rochester, Minnesota. CONTACT: Department of Dermatology, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

12 **Minnesota Physiatric Society Scientific Meeting** Minnesota Physiatric Society; St. Paul-Ramsey Medical Center, St. Paul, Minnesota. CONTACT: David Nash, M.D., Mayo Clinic, Rochester, Minnesota 55905; (507) 285-4058.

12-13 **Minnesota Society of Neurological Sciences Annual Scientific Meeting** Minnesota Society of Neurological Sciences; Radisson St. Paul Hotel, St. Paul, Minnesota. CONTACT: Susan Anton-Johnson, 4225 Golden Valley Road, Minneapolis, Minnesota 55422; (612) 725-6767, ext. 7079.

14-25 **Fifth Annual Occupational Health and Safety Institute** Midwest Center for Occupational Health and Safety; Earle Brown Center, St. Paul, Minnesota. CONTACT: Ruth McIntyre, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3980.

16 **Ear, Nose & Throat** — CME Mesabi Regional Medical Center; Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota. CONTACT: Diane Antonovich, Mesabi Regional Medical Center, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881, Ext. 259.

16-18 **OB/GYN Annual Autumn Seminar** CME, University of Minnesota Medical School; Hyatt Regency Hotel, 1300 Nicollet Mall, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

17-19 **Tenth Annual Trauma and Critical Care Seminar** Hennepin County Medical Center; HCMC, 701 Park Avenue South, Minneapolis, Minnesota. CONTACT: Eugenia C. Kassar, CME Director, Hennepin Faculty Associates, 825 South 8th Street, Suite 350, Minneapolis, Minnesota 55404; (612) 347-2075.

18 **Northwestern Pediatric Society's 75th Anniversary Scientific Meeting** Northwestern Pediatric Society; Thunderbird Motel and Convention Center, Bloomington, Minnesota. CONTACT: M. Nammacher, M.D., 6845 Lee Avenue North, Brooklyn Center, Minnesota 55429; (612) 569-0300.

18 **Primary Care Management of Low Back Pain** Abbott Northwestern Hospital; The Saint Paul Hotel, St. Paul, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

18-19 **Adolescent Medicine** CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

21-25 **Radiology 1987: Chest-Cardiovascular** CME, University of Minnesota Medical School; Willey Hall, West Bank, Minneapolis Campus, 225 19th Avenue SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

24 **Advanced Cardiac Life Support Certification Course** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 874-5461.

25 **Problems in Family Practice** The Duluth Clinic, Ltd., Fitger's Spirit of the North Theatre, Duluth, Minnesota. CONTACT: James G. Brueggmann, M.D., The Duluth Clinic, Ltd., 400 East Third Street, Duluth, Minnesota 55805.

25-26 **Basic Gyn Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

Sept 28-Oct 1 **Colon and Rectal Surgery** CME, University of Minnesota Medical School; Mayo Memorial Auditorium, 420 Delaware Street SE, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

OCTOBER 1987

1-3 **Heart Assist Devices and Heart Replacement** Abbott Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

4-16 **Orient Adventure** North Central Medical Conference; The Orient. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

9 **Chemical Exposures: Emergency Response and Management** St. Paul-Ramsey Medical Center; St. Paul Ramsey Medial Center, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

9-10 **Third Annual Knapp Rehabilitation Center Conference on Head Trauma Rehabilitation** Metropolitan Medical Center and Hennepin County Medical Center; Pillsbury Auditorium, Minneapolis, Minnesota. CONTACT: Deanna Sanderson Sackrider, Knapp Rehabilitation, 900 South 8th Street, Minneapolis, Minnesota 55404; (612) 347-3950.

10 **Children's Heart Clinic First Annual Symposium: Pediatric Cardiology for the Primary Practitioner** Children's Heart Clinic; Education Center Auditorium, Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Children's Heart Clinic, 2545 Chicago Avenue, Suite 106, Minneapolis, Minnesota 55404; (612) 871-4660.

12-16 **Aspiration Cytology** CME, University of Minnesota Medical School, Minneapolis, Minnesota; Bell Institute of Pathology, 2-116 Moos T, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

12-26 **The Danube River Cruise** North Central Medical Conference; Vienna to Instanbul. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

16-17 **Advanced Gyn Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

20 **General Surgery-CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (612) 262-4881.

22-24 **National Behavioral Pediatrics Conference** CME, University of Minnesota Medical School; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

22-24 **Fourth Annual Trauma Course** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

23 **Front Line Neurology** Abbott Northwestern Hospital; Marriott City Center, Minneapolis, Minnesota. CONTACT: Tim Schuh, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

24-25 **Update in Cardiovascular Diseases** Mayo Clinic/Mayo Foundation; Judd Hall, Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

26-28 **Clinical Reviews** Mayo Clinic/Mayo Foundation; Mayo Civic Auditorium, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

28-30 **Internal Medicine Review** CME, University of Minnesota Medical School; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

30 **Cardiology 1987, Update For the Practicing Internist** Hennepin Faculty Associates, Hennepin County Medical Center; Pillsbury Auditorium, Hennepin County Medical Center; Minneapolis, Minnesota 55415; (612) 347-2075.

31 **Ischemia of the Lower Extremities: Recognition and Treatment** Midwestern Heart Lung Clinic; Hyatt Regency Hotel, Nicollet Mall, Minneapolis, Minnesota. CONTACT: Wendy Wolf, Midwestern Heart Lung Clinic, 2545 Chicago Avenue, Suite 611, Minneapolis, Minnesota 55404; (612) 871-4771.

NOVEMBER 1987

6 **E.T. Bell Pathology Symposium** CME, University of Minnesota Medical School; Holiday Inn Crowne Plaza, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

6 **Advanced Concepts in Cardiac Pacing** Abbott Northwestern Hospital; Radisson Plaza Hotel, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

6 **Chemical Exposures: Emergency Response & Management** St. Paul-Ramsey Medical Center; St. Paul-Ramsey Medical Center, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **Communication & Relationship Patterns Between Mothers and Daughters** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **American College of Physicians - Minnesota Scientific Meeting** Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Gerald R. Onstad, Department of Medicine, Hennepin County Medical Center, 701 Park Avenue, Minneapolis, Minnesota 55415; (612) 347-2703.

6-7 **Nutrition in the 80s** CME, University of Minnesota Medical School; Earle Brown Continuing Education Center, St. Paul Campus, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

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Chairman, Department of Orthopedics, St. Paul-Ramsey Medical Center (SPRMC) and Ramsey Clinic (RC). SPRMC, located in St. Paul, Minnesota, is a major teaching affiliate of the University of Minnesota and a major referral and trauma center. Ramsey Clinic, servicing St. Paul-Ramsey Medical Center, is a multispecialty group practice with extensive regional referral and outreach programs. The successful candidate must be qualified to administer a department of orthopedics within a group practice and to lead faculty and residents in service, education, and research. Administrative and clinical experience, including the management of trauma and the capability of program development are required. The candidate is expected to qualify for appointment at the professor or associate professor level; salary commensurate with experience. Qualifications for University of Minnesota associate professorship will include 4-6 years post-residency, a professional distinction in research, and a demonstrated effectiveness in teaching. Qualifications for University of Minnesota professorship will include 9-12 years post-residency, a national reputation in research, and a demonstrated effectiveness in teaching and advising. The University of Minnesota and St. Paul-Ramsey Medical Center and Ramsey Clinic are equal opportunity educators and employers and specifically invite and encourage applications from women and minorities. Address inquiries to: Erhard Haus, M.D., Ph.D., Professor, Department of Laboratory Medicine and Pathology, University of Minnesota, Chairman, Search Committee for Chief of Orthopedics, St. Paul-Ramsey Medical Center/Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-8825. 2-10/87

Neurology: Board certified/board eligible neurologist with EEG/EMG evoked potential experience needed to associate with an established practice. Minneapolis-St. Paul area with large teaching hospital privileges. Please send CV to: Minnesota Medicine (815), 2221 University Avenue SE, Minneapolis, Minnesota 55414. 3-11/87

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Wanted: Family Practitioner, Internal Medicine: Central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (813), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Minnesota, Wisconsin, and Michigan's Upper Peninsula: Emergency department full-time positions, including medical directorship, currently exist at client hospitals in Minnesota, Wisconsin, and Michigan's Upper Peninsula. Varying emergency department volumes, geographical choices. Guaranteed rate of reimbursement, occurrence malpractice insurance coverage, CME allowance. Part-time opportunities are also available. For more details, contact: Mary Dwyer, Spectrum Emergency Care, PO Box 27352, St. Louis, Missouri 63141; 1-800-325-3982. 3-10/87

Physician: Board Eligible/Board Certified internist with background in acute care, including ICU capabilities. Potential assignment as Assistant Chief of Medicine with possibility of faculty appointment if affiliated program is established. Position offers: a competitive salary, basic 40-hour week with limited on-call responsibility, malpractice coverage, 30 days paid vacation, and other excellent fringe benefits in a JCAH-accredited, progressive 820-bed medical center, having 72,000 outpatient visits per year, adequate staffing, including Physician Extenders, and research opportunities. The city of St. Cloud, Minnesota, and the surrounding area boasts of high quality family living for its residents who enjoy clean air, a wide variety of four-season outdoor recreational opportunities, great hunting and fishing in the land of 10,000 lakes, and excellent educational facilities which include three universities. Located between the Twin Cities of Minneapolis and St. Paul and northern lake country. Financial assistance to defer cost of relocation. Equal Opportunity Employer. Write or call: Susan Schermer, Personnel Service, Veterans Administration Medical Center, St. Cloud, Minnesota 56301; (612) 252-1670, Ext. 621. *2-9/87

Family Practitioner with Obstetrical Experience: A six-person family practice group in a lovely small eastern Washington community is in need of an experienced family physician with broad obstetrical experience. Two older physicians in the group have stopped obstetrics and the load is too heavy for the remaining physicians. Good pay. Excellent call schedule. Unlimited recreational pursuits available. This practice is part of the U of W Medical School teaching program and if you are thinking of a change, this is an excellent opportunity. Contact: Lyle J. Cowan, M.D., Rt 3, Box 25, Omak, Washington 98841. 2-9/87

Wausau Medical Center seeks BC/BE associates in Anesthesiology, Dermatology, Family Practice, Infectious Disease, Internal Medicine, Obstetrics/Gynecology, Rheumatology, and Walk-In. New facility situated across the street from new hospital. Full partnership in three years. Easy access to lakes, woods, and mountains. Write (include CV) to: D.K. Aughenbaugh, M.D., Medical Director, Wausau Medical Center, 2727 Plaza Drive, Wausau, Wisconsin 54401. 5-12/87

Physiatrist: Our current, part-time, physiatrist is searching for an American-trained, board certified or eligible physiatrist to become the medical director of our Rehabilitation Center. The position will also provide a private practice opportunity if desired. St. Cloud Hospital is a private, Catholic, nonprofit 489-bed hospital in central Minnesota, 70 miles northwest of Minneapolis/St. Paul, with a 150-member multispecialty medical staff. St. Cloud Hospital is a Level II trauma and emergency facility. The rehabilitation facility has a 10-county (400,000 population) referral area. The present rehabilitation unit is DRG exempt, modern, fully equipped, staffed with 50 professionals (including PT, OT, speech pathologists, TR, rehab nurse specialists, clinical psychologists, and social workers) with an outstanding 16-year history and is actively supported by the medical staff. St. Cloud (pop 50,000) has three area colleges and an excellent independent and parochial school system. Easy one-hour freeway driving to Minneapolis/St. Paul provides outstanding cultural opportunities. St. Cloud is an ideal location for private practice and raising a family. Respond with CV or call collect to: R.J. Cumming, M.D., Director of Medical Affairs, St. Cloud Hospital, 1406 North 6th Avenue, St. Cloud, Minnesota 56301; (612) 255-5626. *3-10/89

Pediatrician to join existing two-person practice at the 23-physician multispecialty Winona Clinic, Ltd., in Winona, Minnesota. Located in the beautiful Mississippi River Valley of southeast Minnesota. The community, with a 40,000 population trade area, is the host of three colleges and a diverse industrial base. Send CV to: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-10/87

Family Practice: One or more family practice physicians needed in western Minneapolis suburbs. Several practice opportunities are becoming available in progressive health-care network affiliated with major west suburban medical facility. Contact: MHC Associates, PO Box 650, Minneapolis, Minnesota 55440; or call John Herman, (612) 932-5010. 3-10/87

OB/GYN: Interstate Medical Center of Red Wing, Minnesota, is seeking BE/BC OB/GYN surgeon to join an established three-physician OB/GYN department. Guaranteed salary with excellent fringe benefits. Contact: John Walsh, M.D., Interstate Medical Center, PO Box 54, Red Wing, Minnesota 55066. 4-11/87

Medical Office Downtown St. Paul adjacent to St. Joseph's Hospital. Furnished and computer $650 per month. (612) 222-1133. 3-10/87

St. Paul: Board certified family physician wanted as fifth physician in progressive, nonprofit neighborhood clinic also serving metro-wide Hispanic community. Well-equipped new clinic facility. Competitive salary and fringes. Bilingual (Spanish) preferred or willingness to learn. Obstetrics included. Starting date July 1988 or sooner if possible. Contact: Dr. Bruce Richardson at (612) 222-1816 or write West Side Community Health Center, 153 Concord Street, St. Paul, Minnesota 55107. 3-10/87

OIAL Large General Practice and Clinic for Sale by GP preparing for retirement. Practice is part of a progressive and rapidly expanding community located in central Minnesota near excellent winter and summer recreation. Current clinic grosses over $500,000 annually, is expandable and equipped with surgery, X-ray, lab, and set up for pharmacy. Fee-for-service and growing! Malpractice insurance not a serious problem. Computerized, excellent staff. Great potential for aggressive GPs, FPs, internists, or surgeons. Excellent hopsital one mile. Write: Minnesota Medicine (814), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 3-10/87

Family Physician: Family Practice clinic seeks BE/BC family practitioner to join established practice in Zumbrota, Minnesota. Outstanding salary and benefits, including association with larger multispecialty clinic. Send CV and references to: Robert R. Thompson, M.D., 267 West Fifth Street, Zumbrota, Minnesota 55992. 3-10/87

Medical Writer: Experienced freelance medical writer available to ghostwrite, edit or consult on journal submissions, grants, clinical summaries, research results, and internal newsletters. Reasonable fees. Therese Ensley, 3501 14th Avenue South #5, Minneapolis, Minnesota 55407-2231; (612) 722-0882. 3-9/87

Internist needed to join well-established practice in a community of 45,000. First-year salary guarantee with excellent fringe benefits. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. (R)

Family Practice, St. Cloud, Minnesota: The St. Cloud Medical Group, a multispecialty group made up of 23 physicians is seeking an additional full-time, board eligible and/or board certified family practitioner to join its department of ten other family physicians. The St. Cloud Medical Group is a young group of physicians that offers a family practitioner a quality opportunity in the way of call schedules and financial rewards. The facility is a very progressive and growing medical force in Central Minnesota and will offer the new family practitioner and his or her family a quality opportunity in one of the fastest growing communities in the state of Minnesota. The facility also has two affiliate branches in Clearwater and Cold Spring, Minnesota. St. Cloud, with a population of over 70,000, is home to three major colleges and offers many cultural and educational opportunities to the physician and his or her family memebers. The St. Cloud community is recognized for its fine public and parochial school systems along with its family-oriented community activities. If interested in joining a progressive and growing medical group in Central Minnesota, please contact and/or call collect: LaRue V. Dahlquist, M.D., President, and/or Daryl G. Mathews, Administrator, at (612) 251-8181, or send your CV to the St. Cloud Medical Group, PA, 1301 West St. Germain, St. Cloud, Minnesota 56301. 4-10/87

Family Physician wanted to join four others in rapidly expanding North Ridge Family Medicine Clinic. New clinic facility in North Mankato. Mankato population 40,000+, opportunity for partnership after one year. Call or write: Tony Giefer, M.D., 1695 LorRay Drive, North Mankato, Minnesota 56001; (507) 387-8231. (R)

Bemidji, Minnesota: Immediate opportunity for an additional Board Certified/Eligible orthopedic surgeon to join young 26-physician multispecialty group practice located in Northern Minnesota. Clinic adjacent to modern, well-staffed and equipped hospital. Competitive salary guarantee plus incentive first year. Excellent benefits and educational leave. An excellent opportunity for a physician to enjoy the practice of orthopedics in the center of hunting, fishing, and clean air. Please respond with CV to: Thomas E. Miller, M.D., or C.C. Lowery, Administrator, Bemidji Clinic, Ltd., 1233 34th Street NW, Bemidji, Minnesota 56601. (R)

La Crosse, Wisconsin — Immediate need for BE/BC general pediatrician. 51-physician multispecialty group, three pediatricians. 350-bed hospital adjacent to clinic. Competitive first-year compensation, excellent benefits. City of 50,000 in beautiful Mississippi River Valley. Contact P.S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 South 10th Street, La Crosse, Wisconsin 54601. Phone (608) 782-9760. 3-9/87

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Clinic Manager Seeking Position with progressive growth-oriented physician group. Ten years' experience including: clinic management, hospital, and consulting. Expert in computer systems, personnel management, benefits plans, hospital relations, and health plan negotiations. Looking for new challenges. For detailed resume and salary history please send a description of your group to: Minnesota Medicine (812), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Urologist— VA Medical Center, Lincoln, Nebraska. Seeking board certified or board eligible urologist for progressive, affiliated 180-bed medical center. Center is affiliated with University of Nebraska for urology residency program. Salary and bonus pay commensurate with training and experience. Licensure any state. Must meet English proficiency requirement. Allowable moving expenses payable. Write or call: (402) 489-3802, Ext. 229. Chief, Surgical Service, VA Medical Center, 600 South 70th Street, Lincoln, Nebraska 68510. Equal Opportunity Employer. *3-9/87

Internist and Family Physician: Fourteen-physician, multispecialty clinic located 100 miles south of Minneapolis-St. Paul is seeking an internal medicine and a family practice physician. Excellent practice opportunities in a community of 25,000. Modern, well-equipped clinic with on-site lab and diagnostic X-ray. Attractive guaranteed salary, excellent benefits and early partnership. Contact: Richard Graber, Austin Medical Clinic, PA, 101 NW 14th Street, Austin, Minnesota 55912; (507) 433-7351. 3-9/87

Arizona-Based Physician Recruitment firm has quality opportunities coast-to-coast. Available positions in most primary care and surgical specialties to include Ob/Gyn, Orthopedics, ER, and ENT. "Quality Physicians for Quality Clients since 1972." Call (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

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General Surgeon and Family Physician needed for busy five-physician practice. Guaranteed first-year salary with excellent benefits program. Located only 22 miles from Duluth on the beautiful North Shore of Lake Superior. Call collect: (218) 834-2171, or write Steve Bjorum, Executive Director, Community Health Center, 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Physicians Needed: Opportunities nationwide!! Call (612) 633-4990 or send CV to: Earl Czech, North Central Staff Services, Inc., 443 — 8th Street NW, St. Paul, Minnesota 55112. (R)

Neurology, Hematology/Oncology, Rad. Oncology: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

Primary Care and Pulmonary: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

40-year-old Internist Seeks BE/BC Internist to provide locum tenens in this central Minnesota resort community. Beautiful lakes and expanding retirement area. New 162-bed hospital with all specialties. Offices in five-year-old medical office building. Write: Minnesota Medicine (807), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 4-9/87

Pediatrician: The St. Cloud Medical Group, a multispecialty physician group, is seeking an additional full-time board eligible and/or board certified pediatrician to share call in a practice with three other pediatricians. The Pediatric Department is very busy and has many referrals from a large family practice department and obstetrical department. The organization is a very progressive and growing medical force in central Minnesota and offers the new pediatrician and his or her family a quality opportunity. The facility has two affiliate branches that also assist the referral network for the Department of Pediatrics. St. Cloud, with a population of 70,000 is one of the fastest growing communities in Minnesota. It is home to three major colleges and provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in joining a progressive and growing medical group in central Minnesota that offers a quality compensation program along with fringe benefits, please contact Dr. Richard Hart and/or Daryl G. Mathews, Administrator, collect at (612) 251-8181, or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-9/87

Urgi-Care Physician: The St. Cloud Medical Group, a multispecialty physician group, is recruiting an Urgi-Care physician in St. Cloud, Minnesota. The physiician must be board certified and/or eligible in family practice and/or emergency medicine. The individual recruited into this position will not be required to take any evening or weekend call and will receive the benefits of association with one of the largest groups in central Minnesota. St. Cloud, with a population of 70,000 is one of the fastest growing communities in central Minnesota, and is home to three major colleges. St. Cloud's location provides quick access to the metropolitan Twin Cities area. The St. Cloud community has excellent school systems and has an excellent cultural and recreational program available to the physician and his or her family. If interested in becoming an Urgi-Care physician in a progressive and growing medical group in St. Cloud, Minnesota, please contact either Dr. LaRue Dahlquist, President, or Daryl G. Mathews, Administrator, collect at (612) 251-8181, and/or send your CV to the St. Cloud Medical Group, 1301 West St. Germain Street, St. Cloud, Minnesota 56301. 4-9/87

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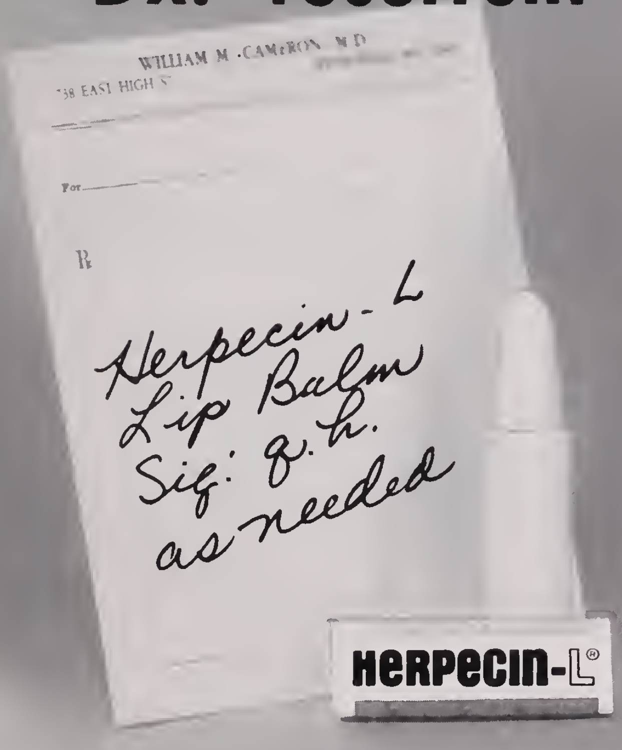

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Mork Clinic, a multispecialty group in Anoka, is looking for a family practitioner to join our staff. Please contact: Dr. James R. Walker or Mr. Richard Moore at (612) 421-3680. 6-10/87

Orthopaedic Surgeon: Well-established solo Board Certified orthopaedic surgeon is looking for another BC/BE surgeon who wants to live in a smaller community and practice quality general orthopaedics. The Northern Pines Orthopaedic Clinic is a newly remodeled, 4000 sq. ft. facility with in-house X-ray and PT. Office located one mile from well-equipped JCAH-approved 100-bed hospital. Practice serves county of 40,000 and parts of three adjacent counties. Grand Rapids is located in the heart of Minnesota's four-season vacationland, offering nearby lakes, excellent boating, fishing, and hunting, two ski resorts, three golf courses, large YMCA, and more. The community has a solid industrial base and one of the better school systems in the state. If interested in an exceptional practice opportunity in a family-oriented community, send CV to: J.W. Burnett, M.D., Northern Pines Orthopaedic Clinic, 111 Golf Course Road, Grand Rapids, Minnesota 55744.(R)

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 9-12/87

Family Practice: to join group of 10 board-certified family physicians. Three offices located in northwest suburbs of Minneapolis. Guaranteed first-year salary plus excellent benefits. Contact: Diane Shuck, M.D., (612) 476-6776 or 537-8405; Marie Hanauska, 537-8475; or write 5810 42nd Avenue, Robbinsdale, Minnesota 55411. 6-9/87

Sathe & Associates Executive Search Firm is currently seeking physicians for positions locally and nationally. Explore new opportunities with a medical professional who is discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write: Liz Johnson: Sathe & Assocaiates, Inc., 5821 Cedar Lake Road, St. Louis Park, Minnesota 55416; (612) 546-2100 (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call R.F. Roskens, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30 bed acute and 86 bed long-term care facility with a clinic located next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minneseota 55072; (612) 245-2212. *(R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

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Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, general internal medicine or with subspecialty training in ear/nose/throat, orthopedic surgery and obstetrics/gynecology. Bemidji Clinic is a 25-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or H.J. Hoody, M.D., Medical Director; (218) 751-1280. (R)

BE/BC Family Practice, Internal Medicine, OB/GYN & Psychiatrist: Excellent opportunity to join a well-established, progressive, 15-physician multispecialty group (7 FP, 4 IM, 2 GS, 1 OB/GYN, 1 DERM) located in an economically sound community of 19,000 (drawing area of 30,000), 65 miles south of Twin Cities. Full membership after one year. One FP retiring in 1987. Competitive salary and fringe benefit package. Contact: Pat Greenwood, M.D., or Jim Wilkus, Administrator, 134 Southview, Owatonna, Minnesota 55060; (507) 451-1120. (R)

Downtown Office Space For Rent. Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553. (R)

BE/BC OB/GYN or Gyn/Gyn Surgery, Internal Medicine, Family Practice, Dermatology, Otolaryngology, Orthopedic Surgeon: A well-established progressive 10-physician multispecialty group in southern Minnesota, a community of 12,000 (trade area of 70,000), competitive salary and fringe benefits. Send CV to: Minnesota Medicine (810), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

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Caution patients about the combined effects of Limbitrol with alcohol or other CNS depressants and about activities requiring complete mental alertness, such as operating machinery or driving a car. In general, limit dosage to the lowest effective amount in elderly patients.

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References: 1. Feighner JP, *et al: Psychopharmacology 61* 217-225, Mar 22, 1979 **2.** Data on file, Hoffmann-La Roche Inc., Nutley, NJ.

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Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses Myocardial infarction and stroke reported with use of this class of drugs) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e g , operating machinery, driving)

> ***Usage in Pregnancy:* Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide)
Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients Periodic liver function tests and blood counts are recommended during prolonged treatment Amitriptyline component may block action of guanethidine or similar antihypertensives When tricyclic antidepressants are used concomitantly with cimetidine (Tagamet), clinically significant effects have been reported involving delayed elimination and increasing steady state concentrations of the tricyclic drugs Concomitant use of Limbitrol with other psychotropic drugs has not been evaluated, sedative effects may be additive Discontinue several days before surgery Limit concomitant administration of ECT to essential treatment See Warnings for precautions about pregnancy Limbitrol should not be taken during the nursing period Not recommended in children under 12 In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects
Adverse Reactions: Most frequently reported are those associated with either component alone drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely
The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs
Cardiovascular Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke
Psychiatric Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido
Neurologic Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns
Anticholinergic Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract
Allergic Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus
Hematologic Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia
Gastrointestinal Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue
Endocrine Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion
Other Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling
Overdosage: Immediately hospitalize patient suspected of having taken an overdose Treatment is symptomatic and supportive I V administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning See complete product information for manifestation and treatment
Dosage: Individualize according to symptom severity and patient response Reduce to smallest effective dosage when satisfactory response is obtained Larger portion of daily dose may be taken at bedtime Single *h s* dose may suffice for some patients Lower dosages are recommended for the elderly Limbitrol DS (double strength) Tablets, initial dosage of three or four tablets daily in divided doses, increased up to six tablets or decreased to two tablets daily as required Limbitrol Tablets, initial dosage of three or four tablets daily in divided doses, for patients who do not tolerate higher doses
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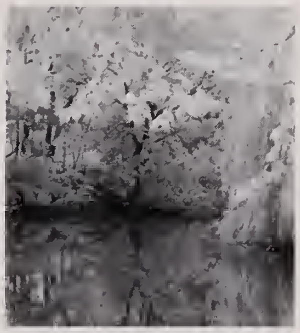

Cover Photograph

Reflections of Autumn

Reinhold O. Goehl, M.D., took the cover photograph of Minnehaha Creek "and its autumnal environs" in Edina, Minnesota. He used a 35 mm Nikon FE with a 43-86 mm zoom lens and Ektachrome 64 film. Dr. Goehl has discontinued his OB/GYN practice because of a back injury, leaving him time to pursue other interests—like photography.

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editor's notebook

The Corporate Transformation of Medicine in Minnesota: An interview with James Reinertsen, M.D.

Twenty-fourth in a series

Editor's Note:** I trust this interview will instruct* Minnesota Medicine *readers as much as it did me. Dr. Reinertsen, president of Park Nicollet Medical Center, is a prototype of a new breed of young physician-executive leaders. At 40, he has spent his entire practicing life in a competitive environment. Park Nicollet differs from most multispecialty clinics in that its 270 physicians at 16 locations have treated HMO and fee-for-service patients contemporaneously since 1972. They have conscientiously tried to treat both groups the same—same locations and same level of service. Only the economics have differed. Last year, the Park Nicollet Clinic made $5 million on $35 million of fee-for-service revenues, but it lost nearly $6.4 million on $55 million of HMO revenues. The fee-for-service dollars were within their control; the HMO dollars were not. These dollar differences are tied to physician values, quality of care, and customer service as Dr. Reinertsen so ably articulates.* ***RLR

Reassessment

REECE: Dr. Reinertsen, you've been president of the Park Nicollet Medical Center for a year and a half. The primary purpose of this interview is to have you tell us what progress you've made. How would you capture in words what you've been doing since you became president?

REINERTSEN: The principal task that faced us was to reassess the Park Nicollet Medical Center strategy and to point it in a new direction—a direction that would ensure the highest quality of care and service for our patients and a direction that would ensure professional satisfaction and reward in a stimulating practice environment.

When I assumed the presidency of the clinic in February 1986, the clinic had had three consecutive years of operating losses. These losses had taken their toll on the clinic's staff and on its systems and structure. My challenge was to try to turnaround our losses so we would have the means to refurbish the clinic's staff, systems, and and equipment.

REECE: Where were those losses mainly?

REINERTSEN: The operating losses had occurred principally because of progressive discounting of the clinic's services—primarily in prepaid services. Initially we thought our costs were out of line. In those previous years, we had wage freezes for employees, and physician salaries had been held flat. Rumor spread that we had large cuts in physicians' salaries. That was not true. Aggregate physicians' salaries had gone up something like 20% or 22% from 1981 to 1986. We *had* held costs down, and we were not putting a lot of money into capital equipment. We had cut the organization down to bone. In those first few months that I was president, we continued to work, mistakenly, on the cost issues. And then we recognized that the problem really wasn't costs. The problem was the price being charged for the HMO services that were 65% of our business.

Richard L. Reece, M.D.

REECE: Progressive discounting with underfunding of HMO services was not restricted to the Park Nicollet Clinic. Most health care organizations in the Twin Cities bought market share at the price of profitability.

REINERTSEN: No question about that. We were like other physicians in the community. In effect, Park Nicollet Medical Center, through its economic engine was providing the power to purchase market share for MedCenters Health Plan, its principal source of prepaid patients, just as other physicians in the community were buying market share for SHARE, or PHP and other health plans, through discounting.

The Turnabout

REECE: How does one execute a turnabout?

REINERTSEN: Turnarounds in organizations are fundamentally strategic. You have to decide what kind of business you're in. You can't base that on history or friendships or tradition. You have to base it on the reality of the marketplace and the realities of the business assets you've got and then make the best possible use out of them.

Strategically speaking, we decided we could no longer be an organization that bought market share at the price of profitability. Lack of profitability was eroding

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into our set of values and would eventually impair patient care.

We also chose to once again be a clinic. Our strategy would be to provide the highest quality of care and service to our patients and to market the quality point of difference. We would not long-term or short-term discount our services. Further discounting would impair quality. We knew it would take a long time to work ourselves out of the legacy of the discounting years. We've started to do it, and I'm pleased to tell you we've turned the corner.

REECE: So you're saying from 1981 to 1986 discounting was in full bloom, and now those days are over.

REINERTSEN: Yes. The period of 1981 to 1986 saw the most explosive growth in market share for prepaid care in the Twin Cities. All prepaid plans during those five years were selling their prepaid package below the total cost required to deliver all the services promised.

REECE: Organizations were not only saying, "We're going to give you a low price," but, "We're going to give you comprehensive services for that low price."

REINERTSEN: It was a wonderful deal for the purchasers of care.

Strategic Changes

REECE: What specific strategic changes did you make?

REINERTSEN: We have done several things. The principal ones include the following. First, we have said that we must receive a higher price for the prepaid services that we sell. Prepaid services now comprise 65% of our business. You can't sell 65% of your business at a loss. The capitation that we receive for those services must meet our costs, at a minimum.

Our data indicate that we have been providing care for that 65% of our business very efficiently. Our hospital utilization rates are among the lowest in the nation. It's not because we have been providing excessive care that we've been losing money; it's because we haven't received an adequate price for it. So our strategy first and foremost would be to increase the price that's charged in the marketplace for the prepaid services, even if that meant shrinking our prepaid services. There is a time in every business's history when it must choose to either walk away from business that it's losing money on or raise the price.

REECE: So the bloom is off the growth rose.

REINERTSEN: It's off the growth rose for services that continue to be sold at a discount.

A second aspect of the strategy is to use whatever money was generated by that price change to reinvest in the organization and to rebuild and refurbish those aspects of Park Nicollet Medical Center that would position us to deliver better care and better services. That's a wide range of things. It starts with people—recruiting the best physicians, nurturing those physicians and other staff—and goes on to systems, equipment, and facilities—the basic blocking and tackling of the medical business.

The third phase of the strategy was to develop the numbers to prove that the quality and service are there. I think the marketplace is going to be asking for those. But measuring quality and service awaits the first two parts of the strategy being in place.

In summary, then, our first strategy is to get an adequate price for services, and the second is to use the finances generated to rebuild and reinvest in quality of care and services.

REECE: The third phase is to measure it?

REINERTSEN: To measure it and to have the numbers to say that it is quality care and service. That's a long-range strategy goal.

Quality Service

REECE: You and I have both read a book called *Service America*! The book says that everybody within an organization has to pay attention to the customer—everybody from the janitor to the chief executive officer. Is that part of your strategy?

REINERTSEN: Absolutely. That would fall under the second part of the strategy. We must concentrate on quality professional care and quality services. Actually, those are two different things. Doctors sometimes have a hard time appreciating that it's possible to deliver very high quality professional care, the right diagnosis, no complications, and prescribe the right medications in a setting of abysmally lousy service. It's also possible to deliver terrible medical care in a very slick setting with wonderful service.

At Park Nicollet Medical Center we know we're going to have to do both—deliver technically excellent medical care and meet the highest expectations of our customers. The difference can be neatly defined by how the two are judged. Technical excellence and professional care are judged by internal professional standards. The excellence of your service is judged by your customer, the patient. Your own idea of what is good service is irrelevant. Ultimately, service is in the eye of the customer not in the eye of the deliverer of service.

REECE: And how have you been trying to look through the eye of the customer?

REINERTSEN: We've done a number of things. It's been my personal highest priority. I have been leading a series of half-day seminars for small service units of the clinic. These service units may range from a group of 10 to 50.

I lead each of those sessions along with our marketing director and our director of patient care services. It isn't a mysterious process. Basically, we solicit patient input for that specific service unit by means of a patient survey. We usually survey 150, maybe 200 patients, for example, of the neurology department or the Plymouth office. We ask them what they think about various aspects like waiting time in the office, waiting time in the exam room, attitude of the receptionist, friendliness of the staff, attitude of lab and X-ray personnel, phone access, waiting time to get an appointment.

Strictly speaking, none of these things has to do with the technical excellence of the care but everything to do with the service. Customers judge the visit to the doctor not so much based on the technical excellence of care rendered but mostly on the service aspects of the clinic.

We take that survey and then ask the staff to guess how the patients would rate them. The staff fills out the same survey and says "This is how I think the patients would rate these aspects of my service."

REECE: And are these views congruent or divergent?

REINERTSEN: They're always divergent, and they always diverge consistently. The staff assumes that the patient is going to rate them more harshly than they actually do. The staff is very gratified to see that patients rate them highly.

We've also used a focus group format in some departments where we wanted a more in-depth understanding. We've had physicians and staff view a group of their patients through a one-way glass mirror. A focus group leader takes the patients through a frank discussion about what they like and don't like about the way things work in the department.

It's a good experience for staff to listen to their patients talk about how well appointments went, or whatever it might be.

We also have the staff suggest in writing how service should be improved. When we bring staff together for this half day, we tell them superb patient service is central to the mission of the Park Nicollet Medical Center. Pure and simple. We point out that this effort isn't a fad; it isn't a one-time bright idea of the president. Our patients are our first priority.

We then show video tapes from the Service America! group in short segments, and the rest of the meeting is devoted to soliciting staff ideas for improving service. From that we prepare a "to do" list for that service unit. Our job as administrators is to prioritize that list and get the things done that need to get done.

REECE: So you're bringing a systematic approach to service, and you're trying to percolate it through all levels of the organization.

REINERTSEN: That's correct. We're trying to become consciously competent at service.

The Mission

REECE: From what you've told me, there's a new era dawning in health care service and in health care economics. To deliver the kind of care you want to deliver, you're going to have to price your product right, to pay more attention to the customer, and to create a culture that understands what you're doing.

REINERTSEN: It gets back to the first task I faced when I took this job. It was to understand the central values of the organization and to make sure that they were not dissonant with what the organization was doing.

The very first thing I did when I became president was to go to our medical group and do a values clarification exercise. It took us a few months, but we came away with a strong statement about what our central values are.

REECE: What are the central values of physicians at the Park Nicollet Clinic?

REINERTSEN: They are two things. One is the highest quality of care possible for our patients, the other is control of our destiny. Those were the values that emerged as main themes. Of course there are subsets to each of those.

We then restated our mission statement, which is very simple. It says the mission of Park Nicollet Medical Center is to provide the highest quality of care and service possible. Then we went on to articulate the strategy I described—price, service, and care, and the numbers to prove it.

REECE: One way you seem to be controlling your destiny is by putting more emphasis on the fee-for-service aspect of your practice. Am I reading that correctly?

REINERTSEN: You are. It's the one controllable element that we have, beyond increasing the MPH price in 1988. We must expand our market and generate new revenues in the fee-for-service area. We still collect 92-93¢ on the dollar in our fee-for-service business.

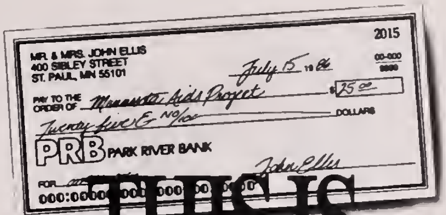
We have taken several steps to reverse the steady downward trend in fee-for-service revenue for the clinic. Our fee-for-service revenues jumped 15% by mid-year 1987, some through direct action of our own—opening up access to Blue Cross/Blue Shield patients, increasing physician time available for fee-for-service, and launching an advertising campaign that identified Park Nicollet as a place you could come to for care even if you didn't belong to MedCenters Health Plan. The effects are already being seen. In May and June of 1987 we had substantial increases in our fee-for-service business, and it's made an enormous difference in the operating profits. We were profitable for the first time in four years.

REECE: So your presidency has been a time of consolidating values, rethinking your mission, and doing what a successful organization has to do in turbulent times.

REINERTSEN: There's one other thing I would add—basic blocking and tackling. In addition to the changes, we have to continue to do the basic things that a physician has to be concerned about. One is the best possible care and the other has to do with getting details right, with charts and records, phones, computers—all the other things that help us work well for our patients.

REECE: So you not only have to have broad strategic goals, but you have to pay attention to details.

REINERTSEN: Absolutely.



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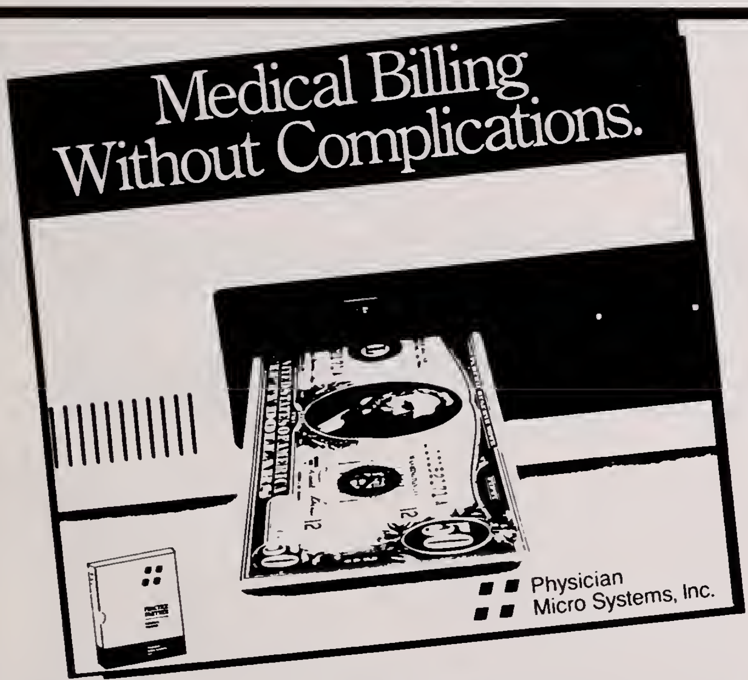
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president's letter

Citizenship

L. Ashley Whitesell, M.D.

"Good laws lead to the making of better ones; bad ones bring about worse. As soon as any man says of the affairs of the State 'What does it matter to me?' the State may be given up for lost."

The Social Contract - Book III, Chapter 15
Jean Jacques Rousseau

Although Rousseau wrote The Social Contract in the 18th Century, his writings continue to hold their truth. The basic thought that "without the participation of its citizens, the State is lost" is as meaningful to us today as it was in Rousseau's time.

Good citizenship demands participation in the democratic process. Through the expression of the citizen's view by working for candidates, and ultimately voting, we achieve a system of law that is accepted and supported by the people.

Our forefathers were farsighted enough to be concerned about the responsibilities of citizens when the constitution was drafted. They realized that with the right to vote comes the responsibility to participate.

Perhaps because we are highly educated and we are healers, physicians are regarded as community leaders. As members of an esteemed profession, we are held in high regard by our fellow citizens. In turn, we have a responsibility to be good citizens by participating in government and by voting.

There is no doubt that we are practicing in an era of change in our health care system. Our profession is threatened with being transformed into more of a commercial business than a profession. Economic and legislative pressures have reached a level of complexity that no one could have predicted ten years ago. The pressure is basically applied to reduce health care costs, but we also face unrelenting pressure from other providers who desire a greater piece of the health care pie. Much of the activity in both of these spheres is taking place within government. Corporate and government efforts to control health care costs have resulted in extensive intrusions on the physician-patient relationship. Physicians' presence in civic affairs is needed more acutely now than ever before because of the extreme economic and regulatory pressures applied to health care today.

At the same time, the costs of practicing medicine have dramatically increased. The total liability insurance costs to physicians in the U.S. increased from $2.4 billion in 1983 to $3.8 billion in 1985. The average cost increased from $5,800 per physician in 1982 to $10,500 per physician in 1985; 4.6% of physicians' average gross income was spent on medical professional liability insurance in 1985 compared to 3.1% in 1982. No one would disagree that these are dramatic cost increases over two years. Our efforts to resolve professional liability insurance problems through the legislative process were successful in 1986. Much of the success was due to the willingness of physicians to get involved.

Whether the problem is the cost of medical professional liability insurance, scope of practice, or Medicare, the proven method to solve the problem is for physicians to become involved and actively work for the proper solution.

To be true advocates for our patients in this era of change in health care, physicians need to be politically involved. Solutions to many of these problems require access to the policy-makers. We gain access by working on campaigns, contributing to candidates, by being informed on the issues, and by expressing our views.

Our involvement in the political process yields more benefits than involvement by most citizens. When we work to assure access to quality health care at a reasonable cost, we are fulfilling the standards of our profession, the needs of our patients, and the qualities of good citizenship. The very essence of our profession, the physician-patient relationship, is on the line in 1987. The only sure means we have to affect the outcome is to be involved with legislative campaigns and with congressional campaigns as volunteers, as contributors, and as providers of information on health care.

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letters to the editor

No Ethical Dilemma

I think that Dr. Sheldon T. Berkowitz's article ("The Ethics of Fiscal Responsibility in a Medical Setting," *Minnesota Medicine*, August 1987) is an example of misuse of ethics in medicine. In the hypothetical case described, Dr. M is said to experience an ethical dilemma about whether to recommend a patient should join an HMO. The dilemma is said to rest on the idea that joining the HMO would be beneficial to the patient, but, because the patient has a complicated chronic medical problem, it may cause financial loss to the HMO.

There is absolutely no ethical problem here. The problem is one of conflict of interest. Dr. M has to decide whether she is going to behave as the patient's physician, in which case, her duty is clear. She must advise the course she believes is to the patient's best interest. If she is going to behave as an HMO administrator, then she must decide whether she could, within the guidelines of operation of that HMO, deny service to this patient on the basis that the patient will be a financial liability in the future.

Conflict of interest issues are not unique to medicine. Politicians, lawyers, newspaper editors, and television executives deal with these problems on a daily basis. In most instances, there are clear-cut guidelines about how to resolve conflict of interest issues. Surely, for a physician who wants to continue to behave as a physician, the primary interest must be the interest of the patient, and no physician should place himself or herself in a position where his or her practice does not allow this primary interest to be followed.

I do not believe any amount of "ethical" analysis can help the physician get around this basic fact of life. If you want to be a doctor, you have to behave like one.

Emre Kokmen, M.D.
Department of Neurology
May Clinic
Rochester, MN

More on *Minnesota Medicine*

In one of your recent issues (May 1987) I read that *Minnesota Medicine* will not publish articles related to clinical sciences and is going to devote the whole journal to addressing the social, political, and economic issues of medical practice. I have always felt that the case reports and reviews published in this journal were valuable to practicing physicians. It may be a mistake to exclude the clinical section totally from this journal. I believe that with the changing medical environment physicians ought to be familiarized with the political and economic issues, but the decision by the journal to publish only such issues to the total exclusion of scientific papers is a drastic one.

Since the journal is subscribed to by most licensed physicians practicing in Minnesota, would it be reasonable to survey the opinions of each subscriber as to the inclusion or exclusion of scientific articles from this journal? If a majority of the readers feels that the scientific articles are important, perhaps you could revert your editorial policy and include both scientific articles and legislative and social issues in our state medical journal, *Minnesota Medicine*.

Venkateswara K. Rao, M.D., F.A.C.P.
Associate Professor of Medicine
University of Minnesota Medical School and Director of Renal Transplantation
Hennepin County Medical Center
Minneapolis, MN

AIDS Awareness Month

October has been declared AIDS Awareness Month by the federal government. As part of its educational initiative, the Minnesota Medical Association has available on request copies of the Centers for Disease Control's MMRW entitled "Recommendations for Prevention of HIV Transmission in Health Care Settings."

To receive a copy, contact Stanton Shandeling at the MMA office: 2221 University Avenue SE, Suite 400, Minneapolis, MN 55414; (612) 378-1875.

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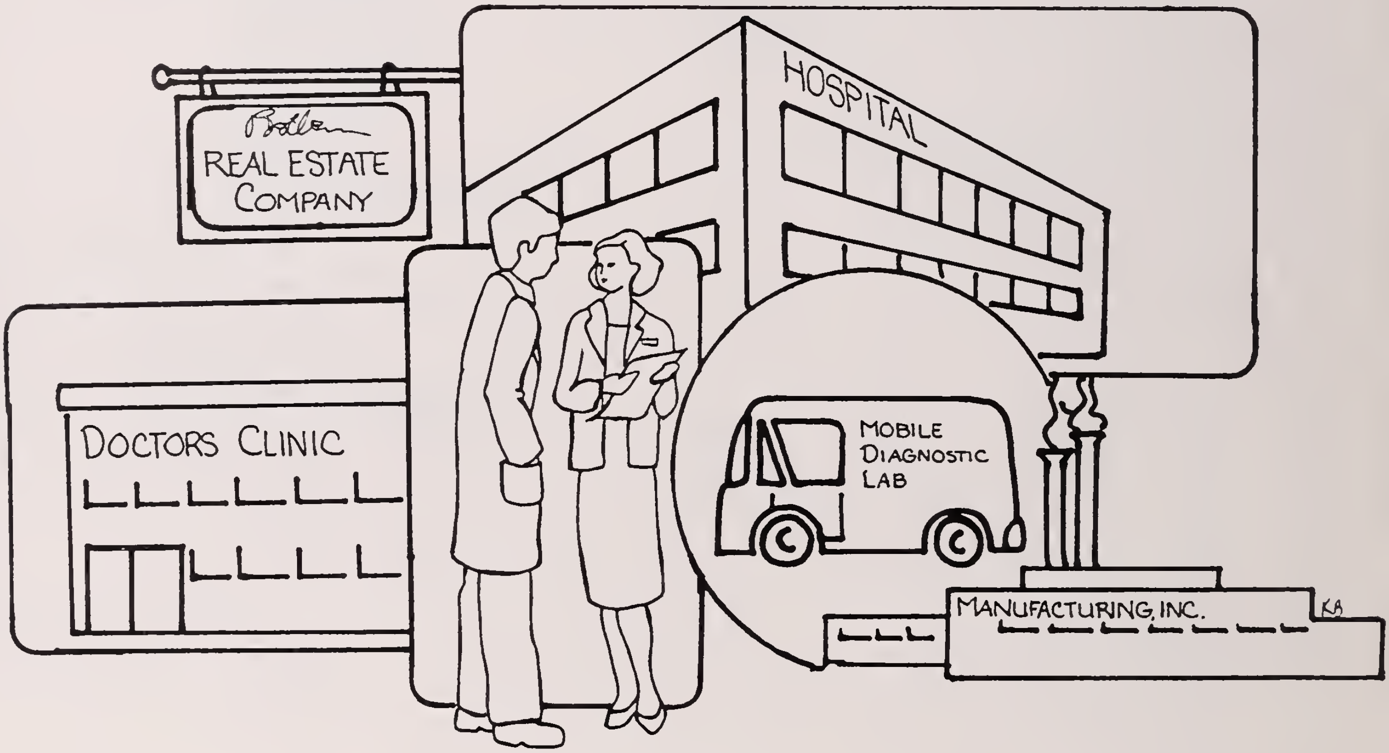

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INDERAL LA should not be considered a simple mg-for-mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose When changing to INDERAL LA from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval In most clinical settings however such as hypertension or angina where there is little correlation between plasma levels and clinical effect INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate systolic pressure and rate pressure product INDERAL LA can provide effective beta blockade for a 24-hour period

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the management of hypertension it may be used alone or used in combination with other antihypertensive agents particularly a thiazide diuretic INDERAL LA is not indicated in the management of hypertensive emergencies

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina palpitations and syncope INDERAL LA also improves exercise performance The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation Clinical improvement may be temporary

CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first-degree block 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL

WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure Although beta blockers should be avoided in overt congestive heart failure if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle

ONCE-DAILY

INDERAL® LA

(PROPRANOLOL HCl)

LONG ACTING CAPSULES

60 mg
80 mg
120 mg
160 mg
LA 120
LA 160
*

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can in some cases lead to cardiac failure Therefore at the first sign or symptom of heart failure the patient should be digitalized and/or treated with diuretics, and the response observed closely or INDERAL should be discontinued (gradually if possible)

> IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction following *abrupt* discontinuance of INDERAL therapy Therefore when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

MAJOR SURGERY The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial It should be noted however that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, eg dobutamine or isoproterenol However, such patients may be subject to protracted severe hypotension Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers

DIABETES AND HYPOGLYCEMIA Beta blockers should be used with caution in diabetic patients if a beta-blocking agent is required Beta blockers may mask tachycardia occurring with hypoglycemia but other manifestations such as dizziness and sweating may not be significantly affected Following insulin-induced hypoglycemia, propranolol may cause a delay in the recovery of blood glucose to normal levels

THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism Therefore abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism including thyroid storm Propranolol may change thyroid function tests increasing T_4 and reverse T_3, and decreasing T_3

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME several cases have been reported in which after propranolol the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker In one case this resulted after an initial dose of 5 mg propranolol

PRECAUTIONS. GENERAL Propranolol should be used with caution in patients with impaired hepatic or renal function INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure Patients should be told that INDERAL may interfere with the glaucoma screening test Withdrawal may lead to a return of increased intraocular pressure

CLINICAL LABORATORY TESTS Elevated blood urea levels in patients with severe heart disease elevated serum transaminase alkaline phosphatase lactate dehydrogenase

DRUG INTERACTIONS Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension marked bradycardia vertigo, syncopal attacks or orthostatic hypotension

Caution should be exercised when patients receiving a beta blocker are administered a calcium-channel-blocking drug especially intravenous verapamil for both agents may depress myocardial contractility or atrioventricular conduction On rare occasions, the concomitant intravenous use of a beta blocker and verapamil has resulted in serious adverse reactions especially in patients with severe cardiomyopathy, congestive heart failure or recent myocardial infarction

Aluminum hydroxide gel greatly reduces intestinal absorption of propranolol

Ethanol slows the rate of absorption of propranolol

Phenytoin phenobarbitone and *rifampin* accelerate propranolol clearance

Chlorpromazine, when used concomitantly with propranolol, results in increased plasma levels of both drugs

Antipyrine and *lidocaine* have reduced clearance when used concomitantly with propranolol

Thyroxine may result in a lower than expected T_3 concentration when used concomitantly with propranolol

Cimetidine decreases the hepatic metabolism of propranolol delaying elimination and increasing blood levels

Theophylline clearance is reduced when used concomitantly with propranolol

CARCINOGENESIS MUTAGENESIS, IMPAIRMENT OF FERTILITY Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential In 18-month studies in both rats and mice employing doses up to 150 mg/kg/day there was no evidence of significant drug-induced toxicity There were no drug-related tumorigenic effects at any of the dosage levels Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

PREGNANCY Pregnancy Category C INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose

There are no adequate and well-controlled studies in pregnant women INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

NURSING MOTHERS INDERAL is excreted in human milk Caution should be exercised when INDERAL (propranolol HCl) is administered to a nursing woman

PEDIATRIC USE Safety and effectiveness in children have not been established

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

Cardiovascular Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency usually of the Raynaud type

Central Nervous System Light-headedness mental depression manifested by insomnia, lassitude, weakness fatigue reversible mental depression progressing to catatonia, visual disturbances, hallucinations, vivid dreams, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. For immediate formulations fatigue lethargy and vivid dreams appear dose related

Gastrointestinal Nausea vomiting epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis

Allergic Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress

Respiratory Bronchospasm

Hematologic Agranulocytosis, nonthrombocytopenic purpura thrombocytopenic purpura

Auto-Immune In extremely rare instances, systemic lupus erythematosus has been reported

Miscellaneous. Alopecia, LE-like reactions, psoriasiform rashes, dry eyes, male impotence and Peyronie's disease have been reported rarely Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSAGE AND ADMINISTRATION. INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily If patients are switched from INDERAL Tablets to INDERAL LA Capsules, care should be taken to assure that the desired therapeutic effect is maintained INDERAL LA should not be considered a simple mg-for-mg substitute for INDERAL INDERAL LA has different kinetics and produces lower blood levels Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval

HYPERTENSION — *Dosage must be individualized* The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic The dosage may be increased to 120 mg once daily or higher until adequate blood-pressure control is achieved The usual maintenance dosage is 120 to 160 mg once daily In some instances a dosage of 640 mg may be required The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks

ANGINA PECTORIS — *Dosage must be individualized* Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three- to seven-day intervals until optimal response is obtained Although individual patients may respond at any dosage level, the average optimal dosage appears to be 160 mg once daily In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS)

MIGRAINE — *Dosage must be individualized* The initial oral dose is 80 mg INDERAL LA once daily The usual effective dose range is 160-240 mg once daily The dosage may be increased gradually to achieve optimal migraine prophylaxis If a satisfactory response is not obtained within four to six weeks after reaching the maximal dose, INDERAL LA therapy should be discontinued It may be advisable to withdraw the drug gradually over a period of several weeks

HYPERTROPHIC SUBAORTIC STENOSIS — 80-160 mg INDERAL LA once daily

PEDIATRIC DOSAGE — At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use

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special feature

Mental health care for medical students and residents

Current problems and evolving resources

*Joseph Westermeyer, M.D., Ph.D.**

Mental health problems among medical students and residents have been receiving increased attention. Previously, only a few pioneers had written about the problems of doctors-in-the-making.[1,2] Of particular concern today is physician incompetence, which national efforts over the last decade have attempted to assess and reduce. These efforts have led to two general observations:

- Useful services available to practicing physicians are often not available to medical students or residents.
- The problems of practicing physicians have often been evident, or at least evolving, during the medical school or residency period—a time when peer-oriented methods for detecting the problems or resources for dealing with them have been minimal or absent.[4,5]

In past years many students and residents with mental health problems were simply discharged. However, such problems alone are no longer considered sufficient cause for detachment.[6,7] In fact, many residents around the country have been reinstated by court action. These cases usually involve minor job dysfunction associated with substance abuse and other maladies. Of concern, however, is the fact that those trainees who fail in the training process are at risk for subsequent psychiatric disability and premature death.[8]

Confusion about how to use available services is also a problem. Should state medical societies or hospital committees provide services to student or resident members, along with practicing physicians? What is the role of students and residents in peer identification of problems? Does the profession or the training institution or the state have a responsibility for providing services for disabled physicians-in-training? What about insurance for mental health services to students and residents? This paper does not settle these issues but does provide information intended to contribute to discussion and resolution of these challenges.

Types of Problems

Life cycle perspective: Physicians-in-training experience many of the same problems as their older colleagues. This is not surprising in view of the long-lasting or recurrent aspects of physicians' common mental health problems, including substance abuse, affective disorder, and personality disorder. However, these problems can take on a special dimension in the younger medical student or resident. For example:

- Many mental health problems (i.e., substance abuse, depression, phobias, panic) begin in the twenties—also when medical training most often occurs.
- Numerous major life changes, which can precipitate or complicate mental health problems, are occurring during medical education and training. These include moving away from home, marriage, parenthood, parental illness or death, bank loans, mortgages, new student and work roles, long hours of study and work.[9,10]
- Financial demands (i.e., tuition, books, fees) are great over a prolonged period (a decade or longer), and ability to generate income is low.
- Exposure to clinical problems and responsibilities during this time poses a special risk.[11,14]

Substance abuse: Pathogenic drinking patterns are typically established during the training years.[15] Group values may encourage heavy drinking after exams or over a weekend to relieve tension, in the U.S.[16-19] and elsewhere.[20] This early group pattern can develop into individual abuse, as the individual chooses to use alcohol symptomatically to relax or to reduce perceived tensions. Later, a physician may self-prescribe addicting drugs for the same purpose.[21] Alcoholism in the medical school faculty, especially if left untreated, may serve as a negative role model for trainees.[22]

Abuse of prescription drugs may begin early in training. Anecdotal case material suggests that this can occur in a senior/junior colleague relationship, with the senior person informally providing the younger one with drugs in order to support a medical function (e.g., stimulants before an exam, opioids for back pain during a long surgical procedure, sedatives to sleep after a night on call). Because the explicit goal of this self-treatment is continued clinical function (rather than recreation or pleasure-seeking), personal abhorrence at the illicit nature of this use may be lessened.

Use of illicit street drugs (e.g., cannabis, cocaine) has increased among students and younger physicians.[23-25] Unlike their elders, they have been exposed to these drugs for years and may not share strong social taboos against their use. Older physicians may be shocked at this and reject the younger person as a criminal or sociopath (either of which may or may not be accurate).

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Crisis, Mental Disorders & Personality Disorders

Crisis or adjustment reactions, with favorable outcomes, are perhaps the most frequent, at least among women medical students.[26] As in the general population, these are related to major life changes (e.g., marriage, childbirth), losses (e.g., romantic break-ups, parental death), and financial crisis. Some crises may be related to role-specific stresses of training and education.[27,28] Faculty advisers and student peers can provide assistance, especially for students away from home. Other acute problems require psychiatric assistance. These include suicide plan or attempt, major depression, bipolar illness, paranoia, or other psychosis. Among one group of 53 residents who had just completed internship, 30% were thought to have had depression during that one year.[11] Suicide attempts or acute alcohol-drug problems may require brief hospitalization.[29]

Many mental health problems result in academic failure or underachievement in the clinical setting. These include onset or recurrence of eating disorder, social and other phobias, obsessive-compulsive disorder, panic attack, competence anxiety, incipient psychosis, and organic disorders.

With increasing role-related responsibility, expectations, and stress, mild personality disturbances may be exacerbated. Passive-aggressive, paranoid, or avoidant personality disorders can become more manifest. Sociopathy and schizoid personality are less frequent but also occur.

Problem Presentation

As mentioned above, medical student and resident problems surface in a variety of ways. In many and perhaps most instances, these problems do not come to the awareness of the university, hospital, medical society, or state licensure board. In other instances they do come to official notice, involving peers and/or faculty in the problem. Commonly such problems become recognized in the following loci:

- Classroom: because of academic failure, reports of cheating, failure to observe rules and regulations, inappropriate or bizarre behavior;
- Ward: because of clinical incompetence, inability to learn from errors, poor patient and family rapport, unreliability, frequent absences, inappropriate appearance, inability to work collaboratively with nurses and others, complaints from patients' advocate offices;
- Seminars, conferences: because of inadequate preparation, inability to formulate the case, lack of priority setting, inability to plan a course of assessment, inability to implement and guide a management plan;
- Community: through a police report, the mass media, a drug enforcement agency, or a university financial office.

Next, the problems are referred to a responsible individual or group for resolution. These commonly include a:

- Student adviser or faculty member: especially when students themselves seek guidance or support;
- Student scholastic standing committee: following reports of academic failure or cheating;
- Dean of students: following social, behavioral, personal, academic, financial, family, or health problems;
- Student health service: typically self-referral for appearance of symptoms;
- Residency director or department chief: in cases of clinical competence crisis;
- Residency committee: in cases of resident incompetence;
- Hospital impaired physician committee: may or may not choose to be involved with residents.

Resources

Services for medical students and residents are being cut back in some medical centers. These cutbacks parallel the general funding cutbacks for mental health services taking place nationally for middle-class persons via insurance and HMOs and for lower-class persons via county, state, and federal reductions. Services provided to medical students through tuition and student fees is one such area. These services had been provided within the dean of students' office, a special medical student adviser's office, and/or a student health service. Cutbacks have been of two general types. First, professional services have been reduced, so that fewer students receive help, or the help is reduced in frequency and/or duration. Or second, specialists (e.g., psychiatrists, doctoral clinical psychologists) have been replaced by generalists (e.g., master's or bachelor's level counselors, primary care physicians, social workers). Insurance benefits for mental health problems have also been reduced. From the 1950s to 1970s, benefits were often exemplary, including even long-term intensive psychoanalysis. Now fee-for-service insurers may cover no or only brief outpatient visits. HMOs may have no or only limited services, with a strong emphasis on crisis care, group sessions, and self help.

Models

Despite these recent reductions in care, several service models still exist in various parts of the country. Student health services differ greatly across the U.S. Some provide only diagnosis and referral outside the system; others treat students to the extent necessary while in school. Care may be of minimal quality (i.e., groups only, non-doctoral-level therapists only) or of quality appropriate to the case. Residents may or may not be eligible. In a UCLA pilot project for psychiatric assistance, 89 residents sought and received service over two years.[20]

Faculty advisers can offer a sympathetic ear and referral to in-house resources. The student adviser system by faculty across the country is uneven; it is absent in some centers, mediocre in others, and highly developed in still others.

A counseling section may be located in the dean's office. Although its explicit function is to advise students on academic matters, this office may also offer services for personal and financial crises among students, as well as triage for more serious mental health problems. Training and experience of staff in these offices range widely, as do the intensity and duration of counseling services. Residents traditionally do not use or do not have access to these advisers. Educational counselors in these positions may not have the background to recognize major psychopathological conditions presenting as academic problems (e.g., major depression causing memory and concentration problems, obsessive disorders causing inability to set priorities).

Students and faculty do not consider the scholastic standing committee a mental health resource; but this committee does encounter mental, emotional, personality, family, and social problems among students. The committee's official options are limited (it can suspend, expel, readmit, or recommend a leave of absence), but unofficially it can recommend in-house counseling or psychiatric referral. Committee leadership and composition are important variables in this regard.

Residency directors are in a position to perceive acute problems or recurrent patterns of dysfunction among residents and can serve a role similar to that of the adviser and the dean of students for medical schools. If the residency has a separate resident adviser system, these faculty members may provide support, counseling, or referral in a role similar to student advisers'. Residency committees, like scholastic standing committees for students, may encounter academic or clinical problems reflecting psychopathological conditions.

Over the last several years many training hospitals have established impaired physician committees. Others are in the process of doing so. Reflecting residents' ambiguous status in hospitals generally, the committees' role vis-a-vis residents is not clear; some committees may be involved with residents, often at the request of department heads or residency directors. Nurses or other staff may consult these committees with a ward or clinic problem involving a resident. If permitted to do so by hospital constitution and staff, these committees can provide guidance to departments and/or residents in dealing with mental health problems.

Most state (and even some county) medical societies now have impaired physician committees. Some of them have full-time or part-time staff members able to collect information and assist the committee in its deliberations. Options available to these committees include, but are not limited to, crisis intervention, triage, education, confrontation, and referral. Residents may qualify for services if they are members of the association or society. Those seeking the assistance or counsel of these committees include physician colleagues, family members, friends, patients, and clinic and hospital staff members. A large percentage of cases coming to attention by this means involve alcohol or drug abuse.

Virtually all faculty in departments of psychiatry are consulted about medical students' and residents' mental health problems. Requests come from many sources: students or residents themselves, their peers, other faculty, nursing staff, various committees, department offices, or the dean's office. Role conflicts may be involved; students or residents may be seeking a faculty ally against the dean's office or a department; or the dean's office or department may be more interested in seeking support for their own decision-making process than in addressing the needs of the student or resident. Clear explication of the task and of the consultant's obligations in the case are necessary. Separation of roles between a therapist-helper and administrator-monitor can be a crucial strategy for some students and residents.

Some departments once provided treatment at no expense for students, although few do so today. As with faculty psychiatrists, some private practitioners once treated medical students or residents at low or no cost. Many still provide care for this group at reduced fees (30% to 80% of usual fees). In one city, a panel of private practitioners agrees, on an annual basis, to treat one student per year at low or no charge.

As traditional resources for students and residents have dwindled, students in some centers have begun to organize to meet their own needs. Social emphasis on peer responsibility has probably facilitated this growing movement. Models for these students and residents have included the impaired physician movement[31,32] and Physicians Serving Physicians. The latter is a volunteer organization now several years old. These volunteer physicians have either had mental health problems themselves (most often substance abuse) or have had a close association with someone having such a problem. These volunteer groups may provide crisis intervention, support, confrontation, and referral. Examples include Aid for the Impaired Medical Student (University of Tennessee College of Medicine) and Medical Students Concerned About Medical Students (University of Minnesota Medical School).

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Special Issues

Prevention: Numerous papers have been written regarding time and stress management for physicians, residents, and medical students. It is not clear that promulgation of these educational materials can or will actually prevent mental health problems; data from other populations is not especially hopeful on this point. However, these "preventive" strategies may prove useful for the developing professional who has recently become symptomatic in the midst of a potentially stressful situation. Guidelines are available for group organization, support groups, attitude reassessment, examination anxiety, time allocation, priority setting, expectation clarification, and communication with patients, nurses, and academic mentors.[33-35]

Preadmission screening has been suggested as a preventive strategy,[36,37] but this will clearly not eliminate all or even most problems. In addition, regulations or laws in some locales may prohibit questions regarding family history of mental health problems or treatment, although these do statistically predict subsequent problems in training.[36,38]

As a means of facilitating early recognition among physicians, the following "burnout" signs may be used for self assessment:

- Physical symptoms: fatigue, insomnia, headache, GI problems, weight loss or gain, lingering cold;
- Psychological symptoms: boredom, restlessness, stagnation, rationalization, feeling indispensable, obsessions, depression;
- Behavioral symptoms: irritability, inablity to enjoy or compliment colleagues' successes, cynicism, defensiveness, faultfinding, excessive alcohol use, drug dependency.

Special populations: In a survey of the 1984 class at the Harvard Medical School, 25% of the men and 68% of the women had consulted the University Mental Health Services at some time.[39] Although gradual changes are occurring, most role models, advisers, deans, and committee members are men, who may or may not be sensitive to the special issues of women in medicine.[40] Family crises, gynecological problems, pregnancy, childbirth, and need for flexible programs compose special health demands for this group.[41-44] However, greater psychiatric risk among female residents, as compared to male residents, has not been demonstrated.[45-46]

Anesthesiology residents appear to be at particular risk of drug abuse. Of 247 residency programs for anesthesiologists responding to a survey, 184 (74%) had at least one suspected drug dependency incident.[47] Some of those residents who became dependent on drugs report having observed mentors self-administering drugs, or report being injected by mentors.[48,49]

Marriage can clearly be supportive to the medical trainee.[50] However, the spouse and/or children of medical students and residents can encounter mental health problems related to the training years.[51] These problems in family members often do not receive attention. Moreover, the family traditions apt to persist throughout the medical career are usually established during this time.[52] Such problems in the family place additional burdens on the trainees, especially when no professional assistance can be obtained. Residents with family stress are themselves at greater risk of mental health problems.[45,53] While family therapy has proven useful in such cases,[54] this modality is even less likely to be covered or provided by health insurance than are individual treatments.

Discussion

As in many sectors of health care, the support and care systems for medical students and residents have been changing rapidly over the last few years, and it is likely that they will continue to change over the next several years. Some resources are decreasing, including access to insured services, tuition-funded services, and free or low-cost services. Other resources are being established: impaired physician committees on hospital and medical society levels, and residents' and medical students' volunteer organizations. Other resources remain at about the same level: student advisers, residency advisers, and various academic committees.

Student and resident problems surface in many ways. Medical school advisers encounter problems that overlap with, but are also different from, those encountered by scholastic standing committees. Unless these diverse individuals and groups communicate with each other, they tend to perceive the mental health problems of medical students and residents in quite different ways. This can lead to misunderstanding among faculty members regarding the nature and extent of such problems.

What can concerned persons do to facilitate mental health services for students and residents in this changing milieu? The following list enumerates options available to advisers, peers, colleagues, and committees:

- Keep track of and publicize the resources available for the disturbed or disturbing student/resident.
- Facilitate access of the needy student/resident to services.
- Emphasize the importance of early recognition (i.e., during student or residency years) to eventual optimal outcome, especially for chronic or recurrent conditions.
- Detect gaps in the network of resources for student/residents, and move to fill these gaps.
- Establish collaboration among resources in order to meet the needs of the student or resident.
- Conceive of alternative levels of care or intervention (e.g., monitor recovery, leave of absence, probation, part-time assignments), rather than make all-or-none decisions (e.g., expulsion from school or resi-

dency, full-time assignment with no special considerations such as monitoring or probation).

- Educate students and physicians regarding changing legislation (e.g., public announcement of disabled physicians in some states, obligation to report disabled physicians in some states) and changing hospital regulations (e.g., requirements in some hospitals that physicians report all their own health care, including mental health care, on an annual basis in order to maintain a hospital appointment).
- Work with legislative and hospital committees to establish rules and regulations that protect society while also serving the needs of recovering physicians.
- Maintain communication with national organizations concerned with impaired physicians, residents, and students, including the American Medical Association (which publishes the Impaired Physician Newsletter), the American Psychiatric Association (which has an impaired physician-resident-student study group), and the American Association of Medical Colleges.
- Keep up-to-date on local professionals and programs with a special interest in caring for medical students and residents.

It is clear that many "disturbed" and/or "disturbing" trainees can complete training and do make satisfactory or even outstanding contributions when appropriate assessment, supervision, counseling, and treatment are available.[55]

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contributions

Emergency room use and abuse

How it varies with payment mechanism

John S. Dickhudt, M.D.; Dwenda K. Gjerdingen, M.D.†; Donald S. Asp, M.D.†*

The appropriateness of 1,212 emergency room visits by five payment groups (welfare, private insurance, Medicare, Group Health, and workers' compensation) was studied in a metropolitan emergency room over a four-week period. Welfare showed a significantly higher proportion of inappropriate or marginally appropriate visits than did the other groups (welfare - 61%, private insurance - 33%, Medicare - 13%, Group Health - 19%, workers' compensation - 29%). Of the payment groups represented, welfare was the only group that did not require prescreening or copayment for emergency room visits by its participants. The need to explore cost-cutting incentives for this group of patients is discussed.

There is no question that emergency rooms serve a very important medical function in communities across the nation. Because of the unique nature of the service they provide, including 24-hour staff coverage and highly technical procedural capabilities, the average emergency room (ER) visit is significantly more expensive than a comparable visit to a physician's office.[1-3] This added expense is certainly acceptable if the visit is warranted. However, unnecessary visits to these more expensive facilities result in higher medical costs, which eventually affect either the patient's health insurance premium or the taxpayer's health care dollar. Furthermore, patients visiting ERs usually see physicians who are not familiar with them, and this may result in decreased efficiency of care, as compared with that provided by the patient's personal physician. Alpert[4] and Brook[5] found that continuing care by one's own physician resulted in better patient compliance, fewer hospital days, and fewer visits for illness than did care provided by hospital clinics and emergency rooms. The purpose of this study is to examine the appropriateness of emergency room use by various payment groups. It is felt that the results provide a basis for recommending that welfare patients in particular be given incentives to use this facility appropriately.

Methods

This prospective study examined 1,212 consecutive ER visits (excluding scheduled procedures, such as proctoscopies, biopsies, and vasectomies) which occurred during a four-week period from August 30, 1982, to September 26, 1982. All patients were seen at Bethesda Lutheran Hospital ER in St. Paul, Minnesota. Patient visits were noted to be either day (from 8:00 a.m. to 4:00 p.m., weekdays), or after hours (4:00 p.m. to 8:00 a.m., weekdays, and all day Saturday or Sunday).

Five different types of payment mechanisms were examined: welfare, private health insurances and certain prepaid plans that function out of private offices (Blue Cross, Equitable, Share, HMOM, or individuals without insurance), Medicare, Group Health (a health maintenance organization with its own after-hours triage/screening system), and workers' compensation.

Patients were given an "appropriateness" rating by the examining ER physician. They were categorized from 1 to 4 as follows: 1) inappropriate, 2) marginally appropriate, 3) appropriate, 4) essential.

Inappropriate visits included chronic conditions and nonemergent problems that occurred during office hours. Diagnoses in this category included diaper rash, acne, upper respiratory infections of several days' duration, and chronic musculoskeletal pain.

Marginally appropriate visits included mild acute problems or minor problems accompanied by significant concerns, often out of proportion to the problem. Examples included small lacerations not requiring sutures, gastroenteritis, hyperventilation, or mild joint sprains.

Appropriate visits consisted of acute problems requiring treatment or intervention but probably not admission. Examples were acute otitis media *not* during doctors office hours, lacerations requiring sutures, significant sprains, and fractures.

Essential visits were admissions or true emergencies, such as myocardial infarctions, cerebrovascular accidents, gastrointestinal

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bleeds, displaced fractures, and spontaneous abortions.

All emergency room physicians were instructed in the correct "appropriateness" rating verbally and via written examples. They participated in a week-long pilot study of "appropriateness" scoring prior to the four weeks of the actual study. The first author then reviewed each participant's ER medical record and, without knowledge of the payment mechanism or original "appropriateness" score, assigned a second "appropriateness" score. If the two scores differed, the second score was used.

TABLE 1

Distribution of ER visit appropriateness scores by payment mechanisms

	Welfare	Private	Medicare	Group Health	Workers' Compensation	TOTAL
Appropriateness Score*						
1 Day	33	24	6	1	0	64
After hours	41	38	0	3	0	82
TOTAL	74 (39%)**	62 (10%)	6 (4%)	4 (2%)	0 (0%)	146 (12%)
2 Day	7	18	4	0	10	39
After hours	34	121	9	40	2	206
TOTAL	41 (22%)	139 (23%)	13 (9%)	40 (17%)	12 (29%)	245 (20%)
3 Day	4	37	8	0	15	64
After hours	46	250	34	136	8	474
TOTAL	50 (26%)	287 (47%)	42 (30%)	136 (59%)	23 (56%)	538 (44%)
4 Day	6	24	20	8	3	61
After hours	19	99	59	42	3	222
TOTAL	25 (13%)	123 (20%)	79 (57%)	50 (22%)	6 (15%)	283 (24%)
5 Day	50	103	38	9	28	228
After hours	140	508	102	221	13	984
TOTAL	190 (16%)***	611 (51%)	140 (11%)	230 (19%)	41 (3%)	1212 (100%)

*Appropriateness scores: 1 = inappropriate, 2 = marginally appropriate, 3 = appropriate, 4 = essential

**39% of all welfare visits were inappropriate (score #1)

***Welfare visits comprised 16% of total ER visits

Results

In all but 45 patient visits (3% of the total patient visits), the author agreed with the examining physician's score. Six private patients' scores were increased one point, and 12 were decreased one point. Two Group Health patients' scores were decreased one point. Four welfare patients' scores were increased one point and 10 were decreased one point. There were no changes in workers' compensation or Medicare scores.

Table 1 summarizes the distribution of patients in each "appropriateness" score category by payment mechanism. Daytime and after-hours ER visits were separated.

Payment mechanism and time (daytime and after-hours) were analyzed by a two-way analysis of variance and showed signficant differences in the appropriateness of emergency room visits between all of the payment mechanisms studied ($p < .001$). In addition, a one-way analysis of variance with Scheffe's procedure ($p < .05$) indicated several significant differences between payment groups for day and after-hours visits. For daytime visits, the welfare group showed a significantly greater number of inappropriate visits than did all other payment groups. While 80% of daytime emergency welfare visits were inappropriate or marginally appropriate, the other payment mechanisms had less than half of their daytime visits in these categories (Figure 1).

When after-hours visits were analyzed, the welfare group again had significantly more inappropriate visits than did all other payment groups. While over half of welfare after-hours visits were inappropriate or marginal, the other groups had less than one-third of their visits classified as inappropriate or marginal. Within the non-welfare sector, inappropriate after-hours visits by Medicare patients were significantly less than inappropriate visits by private and Group Health patients (Figure 2).

Figure 3 shows the percentage of combined inappropriate and marginal visits for the payment groups studied. Again, welfare patients had significantly more inappropriate and marginal visits than did patients in each of the other groups.

Discussion

It is clear that the various groups examined here showed some significant differences in their appropriateness of ER use, and it is possible that these differences are a function of the financial responsibility of the patient for unnecessary ER use.

The private insurance group consisted of patients covered by Blue Cross/Blue Shield, Equitable, Travelers, SHARE, HMOM, other smaller insurance carriers, and patients with no health insurance. One important common characteristic in all of the private insurance carriers was patient responsibility for partial or full payment, based on the type of insurance. In most cases of private insurance, no physician prescreening was necessary for the patient to visit the emergency room. However, in some instances, such as HMOM and SHARE, physician disapproval of patients' visits could make them responsible for the entire bill, but with the physician approval the patient was still required to pay a set fee.

Medicare was similar to the private insurances, in that it also required a copayment fee. Because Medicare contains a large proportion of patients with limited

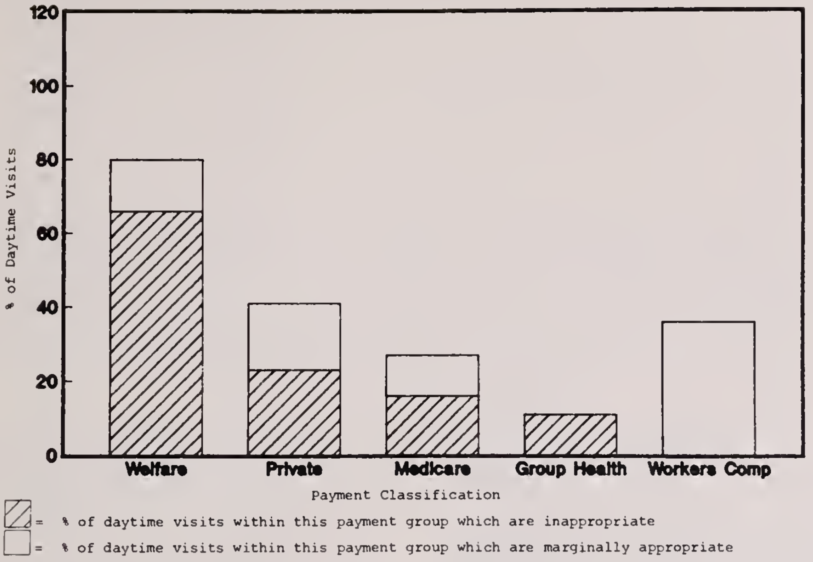

FIGURE 1 – Daytime inappropriate/marginal use of ER.

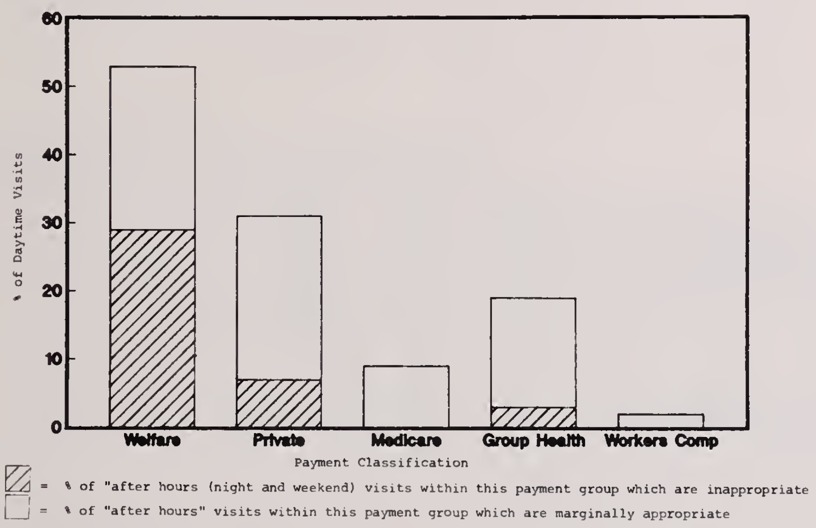

FIGURE 2 – After-hours inappropriate/marginal use of ER.

finances, the copayment may act as a very powerful deterrent to inappropriate ER use. This may well explain the fact that Medicare had the lowest incidence of ER abuse (13%) in this study (Figure 3).

Workers' compensation included a small group of patients who had no personal financial liability, but in most cases, were screened by employers or company nurses prior to emergency room visits.

Group Health insurance differed from these payment mechanisms, in that it would pay the emergency room visit in full only if its screening medical personnel had authorized the emergency room visit. Without their consent, the patient was again responsible for the entire bill.

Finally, welfare insurance differed altogether from the previous four payment mechanisms. Patients had no financial responsibility for any of the emergency room charges, nor were their ER visits screened in any way. In fact, at the site of this study, daytime welfare users of the emergency room were regularly referred to their primary care physicians by ER personnel. However, they often continued to favor the ER over their physicians' offices presumably because of the perceived inconvenience of scheduling visits. In most instances, those visits could have been accommodated in their physicians' offices on the same day, had that been medically necessary.

To summarize the differences between the payment mechanisms studied, private and Medicare insurance both required financial responsibility by the patient but did not require mandatory screening before ER visits. In most cases, patients under workers' compensation and Group Health did not carry personal financial liability, but prior screening was required. Welfare differed from all these payment mechanisms, in that patients incurred no financial liability, and no screening was necessary prior to their ER visits.

Overall, 391 (32%) of the 1,212 ER visits were either inappropriate or marginal. Both inappropriate and marginal visits should, in most cases, be seen in a physician's office, not an ER. The most indiscriminate users of the ER were those with welfare insurance (61%), followed by private insurance (33%), workers' compensation (29%), Group Health (19%), and Medicare (13%). It is possible that lack of patient financial responsibility may have contributed significantly to the higher ER misuse among those welfare patients.

The results of this study raise questions about the need for mechanisms that would discourage indiscriminate emergency room use by

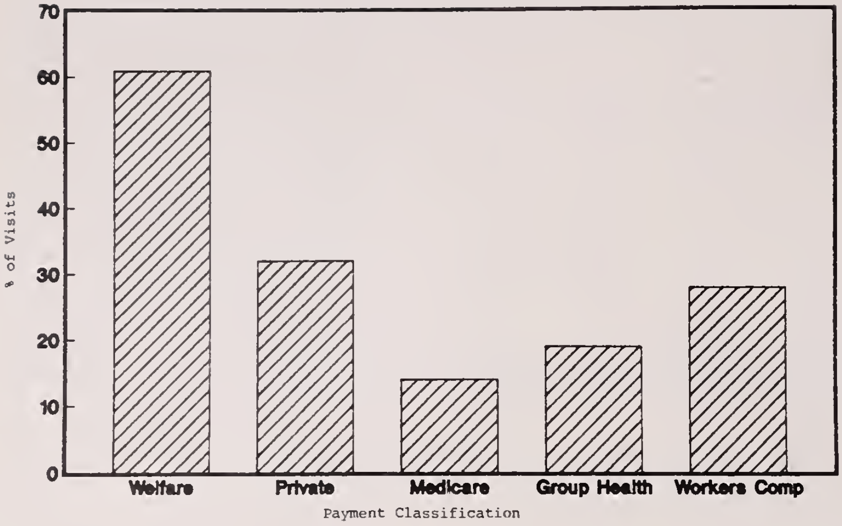

FIGURE 3 – Combined inappropriate/marginal ER visits.

welfare patients. These mechanisms might include copayment and/or pre-visit screening, which could be waived for emergencies. Pre-visit screening has been used successfully, both locally and in other parts of the country, to decrease the cost of emergency medical care.[6] Such mechanisms are likely not only to cut health care costs, but also to encourage continuity of care, thereby improving the quality of health care overall.

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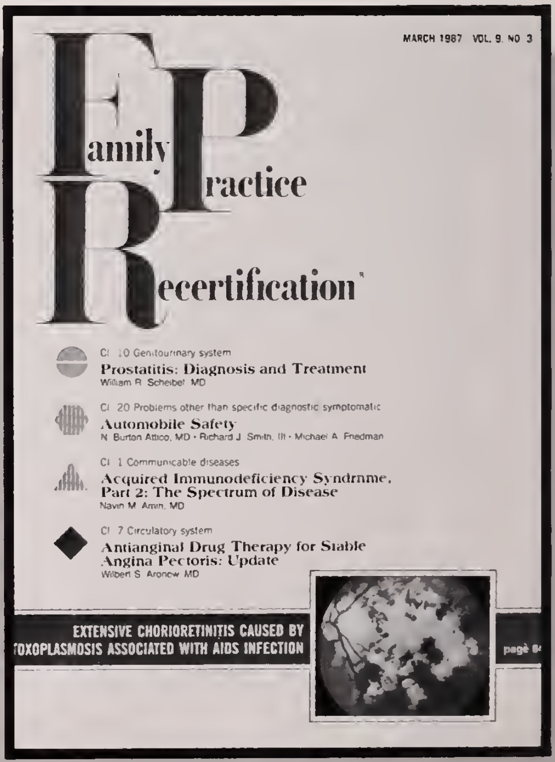
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What is, and what is not, COPD?

*Paul D. Scanlon, M.D.**

Chronic obstructive pulmonary disease is a common diagnosis that most physicians see frequently. This article reviews information about the diagnosis and management of COPD in order to establish an organized approach to patients with COPD and to uncover those areas where signs or symptoms suggesting COPD may mask other conditions.

Chronic obstructive pulmonary disease (COPD) is common. It affects 5 to 10 million Americans. More than 25,000 deaths per year occur as a result of this disease.[1] As a cause for disability claims, COPD is second only to cardiovascular disease.[2] It accounts for a significant portion of the practice of general internists and family practitioners and is the most common diagnosis managed by pulmonary specialists.

COPD is defined as a disease of uncertain etiology characterized by persistent slowing of airflow during forced expiration.[3] Patients with COPD frequently have anatomic emphysema and clinical manifestations of chronic bronchitis. In addition, many patients have evidence of variable airway obstruction. When this is a prominent feature in COPD, many clinicians use the term "asthmatic bronchitis." Emphysema is defined as an abnormal enlargement of the airspaces distal to the terminal nonrespiratory bronchiole, accompanied by destructive changes in the alveolar walls.[3] Chronic bronchitis is defined clinically by the presence of cough or sputum production on most days for at least three months of the year.[3] Because the definitions of COPD, emphysema, and chronic bronchitis are based on physiological, pathological, and clinical abnormalities, respectively, it is not surprising that there is substantial overlap. A given patient may satisfy any or all of these definitions.

The typical patient with COPD may have a variety of symptoms and signs that together suggest a diagnosis of COPD. The patient may complain of dyspnea at rest or with exertion, wheezing, chest tightness, or cough with or without mucous hypersecretion. Findings on physical examination can include tachypnea, tachycardia, pulsus paradoxus, the use of accessory respiratory muscles, hyperinflation of the chest, hyperresonance to percussion, expiratory prolongation, coarse crackles, wheezes, depression and decreased mobility of the diaphragm, or evidence of pulmonary hypertension and right heart failure.

Laboratory evaluation may demonstrate radiographic evidence of lung hyperinflation, coarse interstitial markings, bullous changes, pulmonary artery enlargement and vascular obliteration, and right ventricular enlargement. Arterial blood gas analysis can show evidence of impaired oxygenation, respiratory acidosis, often with metabolic alkalosis. Blood counts can reveal polycythemia.

Pulmonary function studies are abnormal in patients with significant COPD. Abnormalities include impaired airflow often with evidence of hyperinflation, incomplete emptying at low lung volumes, and decreased carbon monoxide diffusing capacity. Flows may improve with the use of inhaled bronchodilators. Any number of these abnormalities may be present in any given patient.

Efforts to classify various subtypes of COPD have been frustrating. The terms "pink puffer," for the patient with primarily emphysema, and "blue bloater," for the patient with chronic bronchitis and chronic respiratory failure, have been proposed.[4] Although some patients fit these stereotypes, there is a spectrum of disease between which leaves many patients, if not most, unclassified. Another classification scheme has been proposed that does not use such visual imagery but is more useful in day-to-day clinical evaluation of patients with COPD.[5] Three clinical manifestations of COPD can be quantitated clinically: 1) chronic or fixed airway obstruction, 2) mucous hypersecretion, and 3) variable airway obstruction or airway hyperresponsiveness (Figure).

Fixed airway obstruction is the *sine qua non* of COPD. It can be assessed on physical examination by evidence of prolonged expiratory time, wheezing, and chest hyperinflation, but these abnormalities are demonstrable only with rather severe obstruction. Spirometry is necessary to obtain a quantitative measure of the severity of airflow limitation. In many circumstances, the measurement of lung volumes and other measures of respiratory mechanics and gas exchange help clarify the abnormality noted on spirometry. Spirometry is the best method for serial evaluation of these patients to document response to therapy and evolution of disease over time. Fixed airway obstruction in COPD may be due to either intrinsic abnormality or collapse of the airways or loss of the normal parenchymal retractile forces. This is best understood by recalling that

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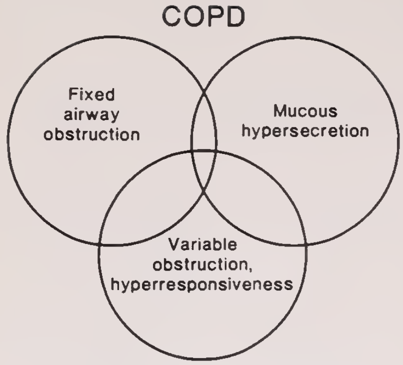

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FIGURE - Three clinical manifestations of COPD.

airflow is the product of flow resistance times driving pressure. Airway abnormalities or collapse increase resistances, whereas loss of parenchymal elastic force reduces the driving pressure for expiratory flow.

Mucous hypersecretion is defined by the regular expectoration of sputum from secretions originating below the glottis. Chronic bronchitis is defined clinically by the presence of mucous hypersecretion on a daily basis for at least three months out of the year. Sputum may be purulent or nonpurulent. The noncellular constituents of sputum may be gravimetrically separated into sol and gel phases. The sol phase is the thin, watery phase whose protein constituents are similar to those of serum with the exception of a relatively high concentration of IgA. The gel phase is the thicker more tenacious portion whose biochemical constituents include a relatively high concentration of mucous glycoproteins and lipids.[6] Improved understanding of the control of mucous secretion and mucociliary transport is greatly needed.

The role of the variable airway obstruction or airway hyperresponsiveness in COPD is a matter of considerable dispute. Many studies have attempted to answer the question whether the patients with COPD have increased airway responsiveness. Interpretation of these studies is confounded by differences in patient selection, bronchoprovocation techniques, measurements of altered lung function, and interpretation of quantitative changes. This topic has been reviewed in detail elsewhere.[5-8] It is clear, however, that there are a substantial number of patients with chronic airway obstruction whose degree of airway obstruction varies considerably over time and with treatment.

Treatment

Using this three-part clinical characterization of COPD, it is possible to classify any given patient with COPD according to these three major clinical manifestations of disease. With these clinical parameters, it is easier to define and follow each patient's clinical course and response to therapy. For any given patient, therapy should be individualized based on the three components of his or her disease.

Variable airway obstruction should be treated vigorously. Theophylline is a bronchodilator that has additional respiratory effects: increased respiratory drive, increased mucociliary transport, and increased diaphragmatic contractility. Newer sustained release preparations are more convenient and can improve patient compliance but can have the potential problems of erratic absorption, delayed onset of action, and prolonged toxicity. Inhaled and oral beta receptor agonists provide additional bronchodilation with less toxicity when used in combination with theophylline than either drug alone in comparably effective doses.[9,10] Administration by inhalation is generally preferred because systemic effects are less prominent than with oral administration. Preparations such as albuterol, metaproteranol, isoetherine, and tuberbutaline provide less cardiac stimulation for a given degree of bronchodilation than isoproteranol or epinephrine by preferentially stimulating the beta-2 adrenergic receptor. Muscle tremor is a dose-dependent side effect of these drugs that patients tolerate best if forewarned and if the dose of the drug is increased gradually.

Ipratropium bromide (Atrovent) is a bronchodilating drug that has recently been approved for use as a metered-dose inhaler. It is a quaternary ammonium derivative of atropine that is poorly absorbed and, hence, acts locally with minimal systemic effects. Glycopyrrolate (Robinul) and atropine methonitrate are similar drugs that have not yet been approved for use as bronchodilators. This class of drugs shows promise for providing bronchodilation in COPD, which can be addictive with the effects of beta-agonists.[11]

Corticosteroids have long been used as part of multidrug therapy for patients with COPD. These drugs have substantial toxicity. There is great controversy concerning their efficacy. It appears that a subset of patients with stable COPD may show measurable benefit from corticosteroid therapy.[12] Also, patients with COPD in acute respiratory failure may benefit.[13] Optimal management is undefined, but current recommendations suggest a clinical trial for individual patients with severe COPD, monitoring spirometry, and other quantifiable clinical indicators of response (e.g., frequency of hospitalization, exercise tolerance).

Calcium channel blocking drugs such as nifedipine have been shown to be effective bronchodilators.[14] Their role in the management of patients with airway obstruction is still under investigation.

The management of mucous hypersecretion is widely neglected, perhaps because we do not have drugs that specifically control the volume of secretion. Interventions that have been advocated include the use of mucolytic agents, expectorants, antimuscarinic agents, beta agonists, bland aerosols, antibiotics, steroids, and physical treatments including intermittent positive pressure breathing (IPPB), and postural drainage. Epidemiologic studies have failed to show a correlation between the presence of mucous hypersecretion and subsequent mortality from COPD. However, this symptom is troublesome for many patients and is a marker of their disease process.[15] Antimuscarinic agents, which can decrease both volume of airway secretion and mucociliary transport, should be considered for control of mucous hypersecretion. They have less effect in diseased than normal airways. Beta agonists may increase mucociliary clearance.[16] Bland aerosols may decrease drying of secretions but can precipitate bronchospasm. IPPB has not been shown to be better than standard therapy in treatment of outpatients with COPD.[17] Postural drainage can be helpful in patients with copious secretions or difficulty clearing secretions.

In the author's experience, microscopic examination of the sputum wet preparation and Gram's stain are extremely useful in the management of mucous hypersecretion. Patients with predominantly eosinophilic sputum respond well to a short course of systemic steroids followed by maintenance inhaled steroids. Patients with purulent sputum with predominantly neutrophils often respond well to broad-spectrum oral antibiotics, although cultures add little to the management of outpatients without pneumonia. Patients whose wet preparations show predominantly alveolar macrophages with or without squamous epithelial cells from the upper airways often have occult postnasal drip. A course of antihistamines or nasal steroids may be helpful for these patients.

Mucolytic agents such as acetylcysteine have been shown to decrease mucus viscosity in vitro but have never been proven to be beneficial for patients in controlled studies. Nevertheless, most pulmonary physicians find them useful in the occasional patient with marginal respiratory function and very tenacious secretions. Caution must be exercised in their use because they can precipitate bronchospasm as a nonspecific irritant. Expectorants containing glyceryl guaiacolate and various iodides have never been shown to be efficacious and are not advocated.

The optimum management of mucous hypersecretion is not well-defined at present. Experience, judicious medical management, and close follow-up after intervention are most important.

Fixed airway obstruction, although it is the essential element in the diagnosis of COPD, is the component which, by definition, does not improve with treatment. We have no treatment for loss of elastic recoil and scarred, distorted airways. One major intervention is prevention of further damage by encouraging and facilitating smoking cessation, removal of other respiratory irritants, vaccination against respiratory infections (pneumoccal pneumonia and influenza), and early aggressive therapy of respiratory insults.

As we follow patients in our offices, periodic reevaluation of the three components of obstructive airway disease can improve the precision of our clinical assessments and help direct therapy.

What is not COPD?

Caution is always in order in dealing with patients with apparent COPD. Many other disease processes can present with some of the features of COPD. Note, however, that by definition, the etiology of COPD is uncertain. If a more specific disease is identified that can explain observed abnormalities, that diagnosis assumes precedence. Because COPD is very common and many of the other diseases that can mimic it are less common, patients may be misclassified as having COPD for lack of a more specific diagnosis.

Why is it important to make a more specific diagnosis? Because treatments for these patients can be improved, dramatically in some cases, by specific treatment. Current therapy of COPD is limited, as noted above. And, as discussed below, there is specific therapy for some of the other diseases. For still others the emphasis of therapy must be considerably redirected, and for all of them, the potential for toxicity of misdirected therapy is real.

What must one consider in the differential diagnosis? The importance of an adequate history on physical examination cannot be overstated. I will simply review a few highlights. First of all, does the patient have a significant smoking history? If not, the diagnosis of COPD must be put to very critical question. Does the patient have a history of asthma, allergy, or atopy? One should also consider occupational history, past and current medical history, all current and recent medications, and a rather careful review of constitutional symptoms and symptoms related to particular organ systems. In reviewing the physical examination, one must be constantly alert for physical findings that are out of keeping with the diagnosis of straightforward COPD: fever, nasal polyps, lymphadenopathy, tracheal deviation, scoliosis, jugular venous distention, cardiomegaly, inspiratory stridor, fine crackles, enlargement of visceral organs, cutaneous eruptions, digital clubbing, peripheral edema, neurological abnormalities suggesting neuropathy or myopathy.

Asthma: As mentioned above, the three-point characterization of chronic obstructive pulmonary disease does not distinguish asthma from COPD. In a number of cases such a distinction is difficult or impossible. There are certain features of asthma that must be considered in such difficult cases. Consider the possible role of extrinsic allergens in the pathogenesis of asthma. "Extrinsic asthma" is less common with increasing age but is by no means rare. The simple avoidance of environmental antigens can be effective in preventing or reducing symptoms. The utility of desensitization programs for asthma is unknown. For the present, this should be considered investigational.[18] Studies have been proposed to evaluate this mode of therapy,[19] and some studies have shown promising results.[20] Another feature of asthma that may be important to note is the frequent presence of sputum and blood eosinophilia. These are easily quantitated with simple tests, correlate with the severity of the disease, and can be used to follow the response to therapy.[21]

A third manifestation of asthma, a complication, distinguishes it from COPD. Allergic bronchopulmonary aspergillosis (ABPA) is a complex immune response to saphrophytic fungi, usually Aspergillis fumigatus, which colonize the airways of asthmatic patients with chronic mucous hypersecretion.[22] In addition to acute and subacute deterioration of respiratory mechanical function, these patients can develop destructive inflammatory changes in their central airway that lead to irreversible morphologic changes. Corticosteroid therapy can be very helpful in the management of this condition if used appropriately.

Occupational exposure: The list of occupations in which workers are susceptible to adverse respiratory consequences is long and growing. It includes agricultural workers, miners, welders, woodworkers, bakers, painters, solderers, pharmaceutical workers, meat wrappers, detergent workers, and many others.[23] Several million workers are thought to be at risk.[24] Symptoms include asthma-like symptoms (an estimated 2% to 15% of all cases of asthma are thought to be related to occupational exposure[25]) as well as industrial bronchitis, hypersensitivity pneumonitis, and other toxic and inflammatory changes in the airways and lung parenchyma. It is important in taking an occupational history to ask each patient not only his or her occupation but to obtain specific details of the types of respiratory exposures he or she might have in the course of the workday. Patients can occasionally correlate symptoms with exposures at work. However, many pulmonary responses are delayed by four to eight hours or more and may be very insidious. As a result, there are many cases in which workers are unaware of the association between occupational exposure and symptoms. Once an adverse response to occupational exposures has been identified, it is important to protect the workers by the use of respiratory protective devices or job modifications. Many of the changes in respiratory function after occupational exposure can persist or even progress after cessation of exposure.[23]

Other environmental exposure: In addition to occupational exposure, keep in mind the possibility of exposure to hazardous substances in the environment in the course of hobbies and nonvocational activities. These include exposure to fungi in humidifiers, avian antigens, toxic fumes, dusts, and other respiratory antigens and irritants. Once an environmental hazard is identified, prevention of further exposure is most important. This can often be very difficult because the hazardous substance may be difficult or impossible to eradicate from the home.

Drug-induced pulmonary disease: Many drugs can cause or contribute to respiratory symptoms.[26] There is a broad range of pulmonary syndromes with which patients can present. Among the more common problems encountered are exacerbation of airway obstruction brought on by the use of beta receptor antagonists prescribed for hypertension, cardiac disease, migraine headaches, or glaucoma. Parasympathomimetics and nonsteroidal anti-inflammatory drugs can also cause bronchospasm in some patients. Other common problems are mineral oil aspiration, worsening respiratory failure due to excess sedation, and a variety of pulmonary reactions to nitrofurantoin.[27]

Cardiac disease: Many patients have evidence of both respiratory and cardiovascular dysfunction. Frequently there is a debate about the relative contribution of each to a patient's symptoms of dyspnea. The cardiovascular dysfunction most often is due to ischemic heart disease. However, congestive and restrictive cardiomyopathies, valvular heart disease, and congenital heart disease must also be considered. In some patients routine pulmonary function studies and routine cardiac function studies do not define the predominant cause of symptoms. For some patients these studies are normal when performed at rest. An exercise study to evaluate both cardiovascular and respiratory function under stressed conditions may be in order.[28]

Infections: Infectious problems may occur as separate problems with symptoms that mimic obstructive lung disease or can be seen as complications of COPD.[29] Those that mimic COPD frequently result in a pattern of bronchitis or bronchiolitis with airway obstruction, and in some cases, interstitial infiltrates. These can be due to various subtypes of adenovirus, influenza, and mycoplasma. Infectious problems seen in patients who do have obstructive lung disease are often related to viral infection or due to overgrowth of chronically colonizing bacteria, especially *Streptococcus pneumoniae* and *Haemophilus influenzae*. Disease either due to Mycobacterium tuberculosis or nontuberculous mycobacteria must be considered in the setting of cough and interstitial infiltrates. Patients with COPD are more susceptible to nontuberculous mycobacterial infection than the general population. Fungal disease likewise should be considered. In the appropriate clinical setting, the judicious use of cultures and serology for such diseases as Histoplasmosis, coccidioidomycosis, blastomycosis, and cryptococcosis can be important. Nocardiosis and actinomycosis are bacterial infections that behave like fungal diseases. They occasionally present complications in the management of patients with COPD.

Neuromuscular diseases: Patients with neuromuscular disorders can present with breathlessness before they develop significant manifestations of weakness elsewhere. Dyspnea in the supine position out of proportion to symptoms in other body positions can be a sign of diaphragmatic dysfunction. Patients with normal diaphragmatic function seldom present with dyspnea at rest but may have exertional dyspnea due to dysfunction of accessory respiratory muscles.

Measurement of pulmonary function, including measurement of lung volumes, can frequently demonstrate characteristic abnormalities in this group of patients. If these studies are normal, measurements of maximal static inspiratory and expiratory pressures are a more sensitive test for neuromuscular weakness.[30]

Interstitial lung diseases: Many diseases present with interstitial infiltrates on chest film and restrictive physiology on pulmonary functions.[31] These include idiopathic pulmonary fibrosis, sarcoidosis, hypersensitivity pneumonitis, pulmonary vasculitides, and numerous other infiltrative, inflammatory, and neoplastic conditions. Findings on physical examination may include fine crackles and other adventitious breath sounds as well as digital clubbing and other physical manifestations of specific entities. These diseases commonly present with breathlessness and occasional productive cough. The alert clinician will obtain chest radiographs and measurements of lung volumes to distinguish this group of diseases from COPD.

A smaller group of diseases has evidence of airway obstruction with interstitial infiltrates. Lung volumes may be increased, normal, or reduced. These diseases include bronchiolitis obliterans, cystic fibrosis, bronchocentric granulomatosis, some cases of sarcoidosis, and lymphangioleiomyomatosis. These diseases are relatively uncommon. Perhaps more common are combinations of COPD with superimposed interstitial disease. The diagnosis of these entities requires specific evaluation, which is beyond the scope of this paper.

Disorders of control of respiration: These include various sleep-related breathing disorders and primary alveolar hyperventilation.[32] Some patients with COPD have abnormalities of respiratory control as well. Diagnosis of these disorders centers on a careful history, alertness in the appropriate clinical situation, and timely referral for sleep study or measurement of ventilatory response to hypoxia or hypercapnia.

Intrinsic airway lesions: The presence of stridor or inspiratory airflow obstruction is frequently a clue to look for evidence of vocal cord dysfunction or an obstructing lesion in the upper airway. An intrinsic airway lesion of the intrathoracic airways may be difficult to distinguish physiologically from other causes of intrathoracic airflow obstruction. Clinical awareness for other clues such as hemoptysis or (recurrent) postobstructive pneumonia is key to the early diagnosis of such lesions. The shape of the maximal inspiratory and expiratory flow volume curves can help by suggesting these lesions. Bronchoscopic examination with careful attention directed to upper airways and inspection of glottic function is in order when such a lesion is suspected.

Congenital or hereditary diseases: Conditions such as cystic fibrosis presenting in the adult, alpha-1 antitrypsin deficiency, and lymphangioleiomyomatosis may present with symptoms characteristic of COPD. Patients with these disorders generally present at a younger age than patients with COPD. The correct diagnosis of each of these diseases can lead to therapy that may prevent or delay deterioration in respiratory function. Genetic counseling may be advisable for some patients.

Malingering: Some patients, because of a desire to claim disability for emotional reasons or other reasons that are not clear, may feign the signs and symptoms of COPD. These patients, if fairly sophisticated, can make diagnosis extremely difficult. In some cases, true airway obstruction cannot be ruled out without the measurement of pulmonary elastic recoil or the relationship between static recoil and maximal expiratory flow. Such studies can be performed in a laboratory equipped with a body plethysmograph.

Summary

The previously mentioned disorders are included to illustrate the complexity that can be encountered in the evaluation of a given patient. They are by no means exhaustive, since virtually any disease involving the lungs, heart, or chest wall can produce some of the signs or symptoms of COPD. The principles outlined for the diagnosis and three-point categorization of the clinical manifestations of COPD should help identify those patients in whom the diagnosis is rather clear. For these patients, a careful history and physical examination, together with simple laboratory studies, including chest radiograph and pulmonary function measurements, should suffice.

For some patients, the clinical picture is not so straightforward. For these patients alternative diagnoses must be considered, and more sophisticated evaluation is in order.

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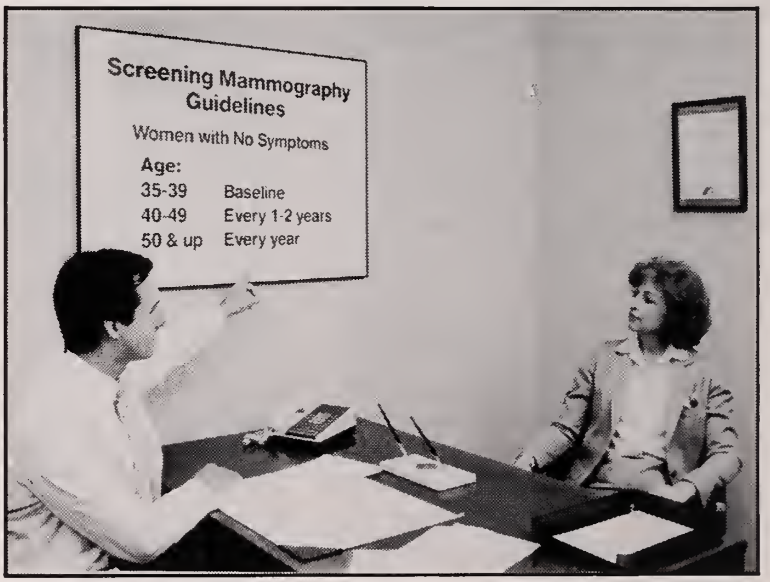

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Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

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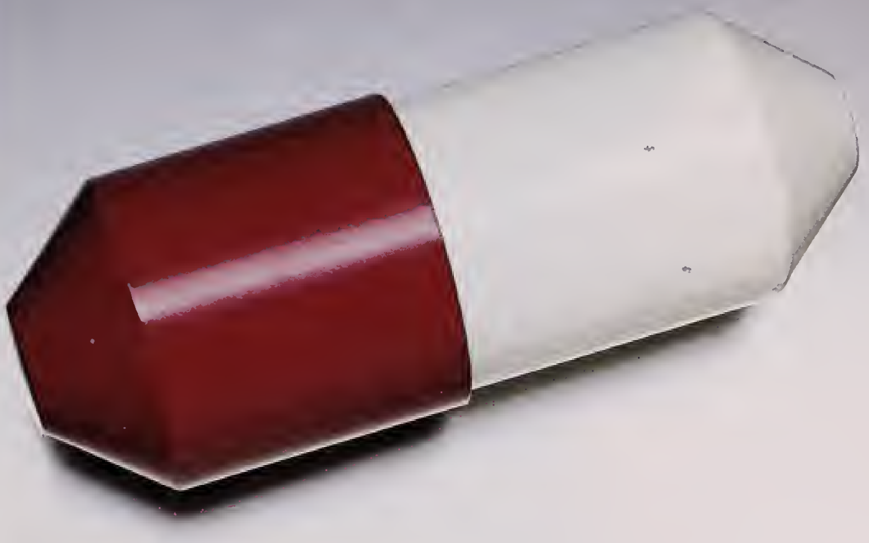

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BRIEF SUMMARY (*FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION SEE PACKAGE CIRCULARS.*)

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream, in a nonliquefying base

1 ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA
Three independent case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year This risk was independent of the other known risk factors for endometrial cancer These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers The risk appears to depend on both duration of treatment and on estrogen dose In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy Although the evidence must be considered preliminary one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration, it therefore appears prudent to utilize such a regimen Close clinical surveillance of all women taking estrogens is important In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding adequate diagnostic measures should be undertaken to rule out malignancy There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses
2 ESTROGENS SHOULD NOT BE USED DURING PREGNANCY
The use of female sex hormones both estrogens and progestogens, during early pregnancy may seriously damage the offspring It has been shown that females exposed in utero to diethylstilbestrol a nonsteroidal estrogen have an increased risk of developing in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare This risk has been estimated as not greater than 4 per 1,000 exposures Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis epithelial changes of the vagina and cervix Although these changes are histologically benign it is not known whether they are precursors of malignancy Although similar data are not available with the use of other estrogens it cannot be presumed they would not induce similar changes Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion) Some of these exposures were very short and involved only a few days of treatment The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000 In the past female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion There is considerable evidence that estrogens are ineffective for these indications and there is no evidence from well-controlled studies that progestogens are effective for these uses If PREMARIN is used during pregnancy or if the patient becomes pregnant while taking this drug she should be apprised of the potential risks to the fetus and the advisability of pregnancy continuation

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine It contains estrone equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol equilenin, and 17α-dihydroequilenin as salts of their sulfate esters Tablets are available in 0.3 mg 0.625 mg 0.9 mg 1.25 mg and 2.5 mg strengths of conjugated estrogens Cream is available as 0.625 mg conjugated estrogens per gram
INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP) Moderate-to-severe *vasomotor* symptoms associated with the menopause (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions) Osteoporosis (abnormally low bone mass). Atrophic vaginitis Kraurosis vulvae Female castration

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING)
Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes Whether this will provide protection from endometrial carcinoma has not been clearly established There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens (See PRECAUTIONS) The choice of progestin and dosage may be important, product labeling should be reviewed to minimize possible adverse effects
CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions 1 Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease 2 Known or suspected estrogen-dependent neoplasia 3 Known or suspected pregnancy (see Boxed Warning) 4 Undiagnosed abnormal genital bleeding 5 Active thrombophlebitis or thromboembolic disorders 6 A past history of thrombophlebitis thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy)
WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning) However a recent large case-controlled study indicated no increase in risk of breast cancer in postmenopausal women A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement, it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis pulmonary embolism stroke and myocardial infarction Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism or during periods of prolonged immobilization Estrogens should not be used in persons with active thrombophlebitis thromboembolic disorders or in persons with a history of such disorders in association with estrogen use They should be used with caution in patients with cerebral vascular or coronary artery disease Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast have been shown to increase the risk of nonfatal myocardial infarction pulmonary embolism and thrombophlebitis When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness abdominal mass, or hypovolemic shock Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives For this reason, diabetic patients should be carefully observed Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases
PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure breasts, abdomen and pelvic organs, and should include a Papanicolaou smear As a general rule estrogen should not be prescribed for longer than one year without another physical examination being performed Conditions influenced by fluid retention, such as asthma epilepsy, migraine, and cardiac or renal dysfunction require careful observation Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding mastodynia etc Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients Oral contraceptives appear to be associated with an increased incidence of mental depression Patients with a history of depression should be carefully observed Pre-existing uterine leiomyomata may increase in size during estrogen use The pathologist should be advised of estrogen therapy when relevant specimens are submitted If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated Estrogens should be used with care in patients with impaired liver function renal insufficiency, metabolic bone diseases associated with hypercalcemia or in young patients in whom bone growth is not yet complete If concomitant progestin therapy is used potential risks may include adverse effects on carbohydrate and lipid metabolism

The following changes may be expected with larger doses of estrogen:

a Increased sulfobromophthalein retention.

b Increased prothrombin and factors VII, VIII IX, and X, decreased antithrombin 3, increased norepinephrine-induced platelet aggregability

c Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone as measured by PBI T_4 by column or T_4 by radioimmunoassay Free T_3 resin uptake is decreased reflecting the elevated TBG, free T_4 concentration is unaltered

d Impaired glucose tolerance

e Decreased pregnanediol excretion

f Reduced response to metyrapone test

g Reduced serum folate concentration

h Increased serum triglyceride and phospholipid concentration

As a general principle the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk

Long-term continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina and liver However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens
ADVERSE REACTIONS: The following have been reported with estrogenic therapy including oral contraceptives breakthrough bleeding spotting change in menstrual flow dysmenorrhea premenstrual-like syndrome, amenorrhea during and after treatment, increase in size of uterine fibromyomata, vaginal candidiasis, change in cervical erosion and in degree of cervical secretion cystitis-like syndrome tenderness, enlargement secretion (of breasts) nausea vomiting abdominal cramps, bloating cholestatic jaundice chloasma or melasma which may persist when drug is discontinued erythema multiforme, erythema nodosum, hemorrhagic eruption, loss of scalp hair hirsutism steepening of corneal curvature intolerance to contact lenses, headache, migraine, dizziness mental depression, chorea increase or decrease in weight, reduced carbohydrate tolerance aggravation of porphyria, edema changes in libido
ACUTE OVERDOSAGE: May cause nausea and withdrawal bleeding may occur in females
DOSAGE AND ADMINISTRATION:
PREMARIN® Brand of conjugated estrogens tablets, USP
1 *Given cyclically for short-term use only* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis or kraurosis vulvae associated with the menopause (0.3 mg to 1.25 mg or more daily) The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible Administration should be cyclic (eg three weeks on and one week off) Attempts to discontinue or taper medication should be made at three- to six-month intervals
2 *Given cyclically* Osteoporosis Female castration Osteoporosis —0.625 mg daily Administration should be cyclic (eg three weeks on and one week off) Female castration—1.25 mg daily cyclically Adjust upward or downward according to response of the patient For maintenance adjust dosage to lowest level that will provide effective control

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding
PREMARIN® Brand of conjugated estrogens Vaginal Cream
Given cyclically for short-term use only For treatment of atrophic vaginitis or kraurosis vulvae

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible

Administration should be cyclic (eg three weeks on and one week off)

Attempts to discontinue or taper medication should be made at three- to six-month intervals

Usual dosage range 2 g to 4 g daily intravaginally depending on the severity of the condition

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding

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The control of warfarin anticoagulation
A University of Minnesota medical conference

Dale E. Hammerschmidt, M.D., F.A.C.P.

The following is based on an edited transcript of a Department of Medicine Grand Rounds, presented February 12, 1987, at the University of Minnesota.

For many millenia, selective pressure favored the development and maintenance of a very active hemostatic system. In the last two centuries, however, the risk in humans of atherosclerotic disease and of thrombosis has outstripped that of saber-toothed tiger attacks. As a result, we sometimes find attractive the idea of blunting the efficiency of hemostasis—either on a chronic basis, to reduce atherogenesis, or more acutely to deal with thrombosis or extreme thrombotic risk. Unfortunately, our tools for such interventions, and our tools for monitoring them, are quite a bit less than perfect, and problems with anticoagulant therapy are common in clinical practice. This article outlines some of the problems in the control of warfarin anticoagulation.

Case Report

A 64-year-old man underwent spinal decompression and L3-S posterior fusion (Steppe plate) late in 1985. Symptomatic benefit did not accrue, and *Staphylococcus epidermidis* osteromyelitis was diagnosed; the Steppe plate was removed, and long-term Vancomycin was begun via indwelling intravenous catheter.

Within three weeks, the patient developed thrombocytopenia (12,000 platelets/ L) and petechiae; anti-platelet antibodies were demonstrable, but could not be shown to depend upon the presence of either heparin or Vancomycin. Steroids were given, a penicillin was substituted for Vancomycin, and continuous saline infusion was substituted for heparin flushing of the catheter. The platelet count recovered, but the patient presented with an extensive deep-venous thrombophlebitis two weeks later.

Because the patient's thrombocytopenia may have been heparin-induced, his phlebitis was managed with streptokinase; warfarin was also begun. Because of severe serum-sickness-like symptoms, streptokinase was discontinued after three days. After nine days, although the patient's prothrombin time had been above 20 seconds for five days, a pulmonary embolus occurred (Figure 1); it proved impossible to re-establish a thrombolytic state with streptokinase, and serum sickness symptoms promptly recurred. Opinion was divided concerning the advisability of inferior vena caval interruption; the patient was heparinized, and recovered uneventfully.

Discussion

A central problem with the clinical use of coumarin anticoagulants is well illustrated by this case: The prothrombin time reasonably accurately reflects the clinical state of coumarin anticoagulation *only* in the uncomplicated patient who is at a stable equilibrium. That is, the test is fairly reliable only in a patient who has had in the preceding week no change in coumarin dose, vitamin K intake, bowel flora, liver function, or drugs altering coumarin kinetics, and who has no active hemorrhage or thrombotic process underway. And as if those limitations were not discouraging enough, the test is a rather mediocre predictor of hemorrhagic and thrombotic risk even under the best of circumstances.

To explain why this is so, and to explain why the described case was not considered to be an anticoagulation failure (and thus subjected to caval interruption), I will very briefly discuss the prothrombin time itself, the action of vitamin K, and the action of coumarin drugs such as warfarin. I will close with some comments about strategies that might be adopted in patients for whom the prothrombin time cannot be trusted.

Prothrombin time: Hematologists are wont to display figures of the coagulation cascade that are hopelessly complex, including many feedback, regulatory, and ancillary pathways. For most clinical decision-making, however, a much-simplified box diagram will suffice (Figure 2). The business of the clotting system is to make a clot, which it does by converting fibrinogen to fibrin through the action of thrombin. Put another way, the business of the clotting system is to make thrombin. Thrombin is made from prothrombin by an enzymatic complex that conveniently can be lumped into a box and called the "final common pathway." This box contains calcium, phospholipid, and factors V, X, and II (prothrombin).

There are two main ways to turn on the "final common pathway." One is through tissue factor, a substance liberated from many tissues when disrupted; tissue factor activates Factor VII, which in turn activates the final common path-

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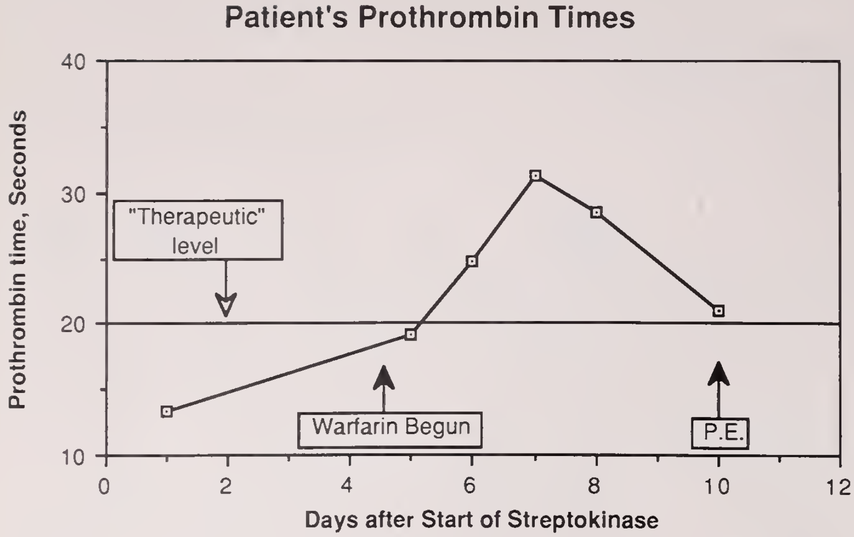

FIGURE 1 - Prothrombin time as a function of time, with major clinical events indicated. In the laboratory where the tests were run, 20 seconds is a usual "therapeutic" value.

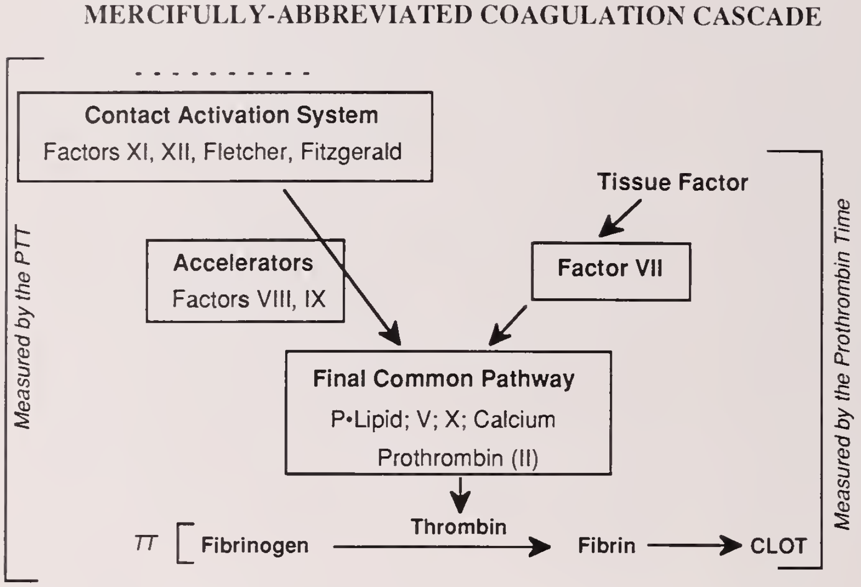

FIGURE 2 - Abbreviated outline of the plasma coagulation system, described in text.

way. The other way to activate the final common pathway is via the contact activation system, which is triggered by negatively charged surfaces, such as subendothelial collagen. This system includes Factors XII and XI, as well as Fletcher Factor and Fitzgerald Factor; it is very inefficient at turning on the final common pathway in the absence of an accelerator "box," containing Factor VII and Factor IX (the agents missing in hemophilias A and B, respectively.)

The prothrombin time is a fairly simple test that measures the "tissue factor" side of the system. One adds to citrated plasma a "complete thromboplastin," containing both tissue factor and phospholipid (usually, this is an extract of ground-up rabbit brain). Then, the plasma is recalcified, and the time to clot formation is recorded. As indicated in Figure 2, the test will be sensitive to the levels of Factors VII, V, X, II (prothrombin) and I (fibrinogen), as well as to any inhibitors of these factors or of the final fibrin polymerization to form a clot. Some of these factors are important to the clinical anticoagulant effect of warfarin, and some are not; some of these factors are dependent upon vitamin K (II, VII, X), and some are not.

Vitamin K: Vitamin K is required for the functional synthesis of several coagulation factors; these include II, VII, IX, and X of the classical coagulation cascade, as well as the more recently described regulatory substances, Protein C and Protein S. Each of these substances is originally made as a prosubstance, which undergoes a vitamin-K-dependent modification to become the final functional factor. This is schematically displayed for prothrombin in Figure 3.

Near the amino terminus of the pre-prothrombin molecule are ten glutamic acid residues. These are gamma-carboxylated by an enzyme for which vitamin K is a cofactor. The carboxylated glutamic acid residues make a very good calcium binding site; when calcium is bound, the molecule changes its conformation, and can then become activated. As a bonus, changes in the surface exposure of some antigens when the conformation changes make it possible to devise immunoassays specific for the functional (carboxylated) or non-functional (descarboxyl) form of the factor (such an assay pair has been described for prothrombin). In the normal state, virtually all of the prothrombin is carboxylated before it is released from the liver cell; measurable descarboxy-prothrombin is not normally present in plasma. Although the details may be a bit different, the basic process is the same for all of the vitamin-K-dependent factors.

The coumarins: Coumarins were originally described in pursuit of the etiology of sweet clover disease, a hemorrhagic disorder of cattle eating spoiled sweet clover hay. Extracts of such hay were found to

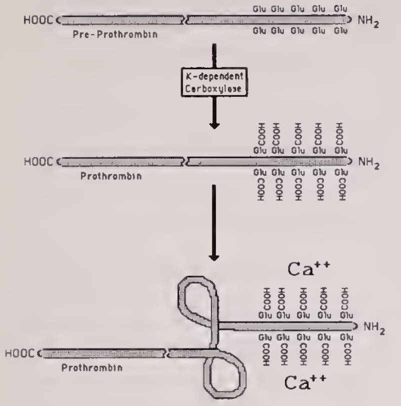

FIGURE 3 - Vitamin K works as a cofactor for the conversion of a prothrombin precursor into an extensively carboxylated active coagulation factor. The enzymatic carboxylation of glutamic acid residues near the amino-terminus of the molecule creates the needed calcium-binding site.

act as anticoagulants in vivo, but not in vitro, and coumarin compounds were identified as the responsible substances.† Simply put, these agents interfere with the functional synthesis of the vitamin-K-dependent factors. They do not do this by inhibiting the effect of vitamin K per se; rather, they interfere with the body's normal mechanisms for maintaining vitamin K in its active form. Vitamin K hydroquinone (or phylloquinone) is readily oxidized to a number of inactive metabolites, including vitamin K epoxide. An enzyme known as vitamin K epoxide reductase restores the epoxide to the active hydroquinone form. Inhibition of this enzyme is probably the most important action of warfarin and its kin. The net result is that there isn't enough vitamin K in its active form to ensure the full carboxylation of the vitamin-K-dependent coagulation factors; incompletely carboxylated, functionally defective molecules are secreted, and hemostatic incompetence results.

The unreliability of the PT: When warfarin therapy is begun, the functional levels of the K-dependent coagulation factors fall off as a function of their half-lives (Figure 4). Factors VII and IX have half-lives of only a few hours, while Factors X and II have half-lives of more than a day. This imbalance in half-lives, combined with a difference among the factors in the synthetic rate under warfarin inhibition, creates a situation in which it takes 5 to 10 days for an equilibrium state to be reached.

This is particularly troublesome in the first few days. As can be seen in Figure 4, the Factor VII levels falls off very quickly after starting warfarin; Figure 2 shows, furthermore, that it's a key player in the prothrombin time. In fact, as Factor VII falls, it rapidly becomes the rate-limiting factor, and the prothrombin time becomes "therapeutically" prolonged within two days (Figure 4, left-hand arrow). Unfortunately, the Factor VII level has very little to do with the resistance to thrombosis and thromboembolism. In a large number of studies—some clinical and some in experimental animals—such resistance has correlated best with the Factor II and Factor X levels, which do not become "therapeutic" for about a week (Figure 4, right-hand arrow).

In each patient, therefore, the initiation of warfarin therapy occasions a period of several days during which the prothrombin time suggests adequate anticoagulation, but it just isn't the case. To a lesser degree, the same sort of problem recurs every time there's a change in warfarin dose, dose in any interfering medication, or clinical status—equilibrium takes quite a while to achieve, and the prothrombin time may mislead you in the meantime.

What to do: Fortunately, many patients receiving warfarin are fairly stable people who have had transient ischemic attacks or who have mitral valve disease. After the first week, the prothrombin time in such patients is a reasonable measure of the state of anticoagulation, and keeping the result between 1.5 and 2.2 times the reference normal value will limit the risk of clinically significant hemorrhage to about 5% per year. This is not ideal but is acceptable if the indication for anticoagulation is strong, and it is far superior to simple administration of the drug on a mg-per-unit-body-weight basis.

In the patient who is not at equilibrium, or who is complicated and unlikely to achieve a stable equilibrium, it is far more difficult.

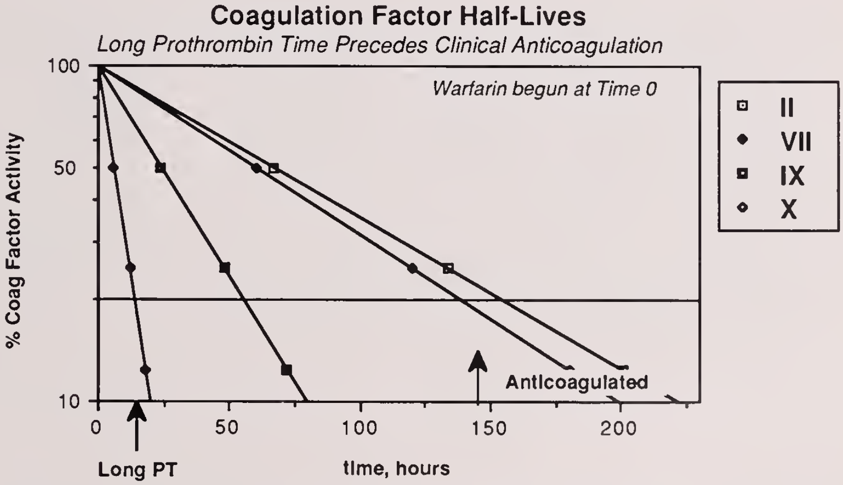

FIGURE 4 - Half-lives of the major vitamin-K-dependent coagulation factors. The Factor VII level falls off very rapidly with the initiation of warfarin, such that the prothrombin time is "therapeutically" prolonged on about the second day (left-hand arrow). But it is the depression of the Factor II and Factor X levels to about 20% of normal that results in clinical anticoagulation; this is not achieved for 5 to 10 days (right-hand arrow).

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†The name warfarin derives from Wisconsin Alumni Research Foundation, under whose aegis the original bovine work was conducted.

The simplest advice is to avoid making clinical decisions based on a prothrombin time when the test is unlikely to be reliable. At least five days of overlap should be allowed in a patient being started on warfarin after heparinization or thrombolytic therapy for an acute event.

Occasionally, as in the patient presented, such simple rules are not enough. In order to decide whether he should have a vena caval interruption, it was necessary to know whether his pulmonary embolus had occurred under adequate anticoagulation (and if so, for how long that anticoagulation had been present). Fortunately, the physician caring for him (not the author) had foreseen the possibility of complications in the face of unreliable laboratory tests, and had been following the more-important Factor II activity as well as the conventional coagulation times. As can be seen in Figure 5, although the embolus occurred in the face of a prothrombin time that had been "therapeutic" for several days, the Factor II level was just entering the therapeutic range; it was therefore decided that the patient was not anticoagulated, and he was managed with heparin rather than surgery.

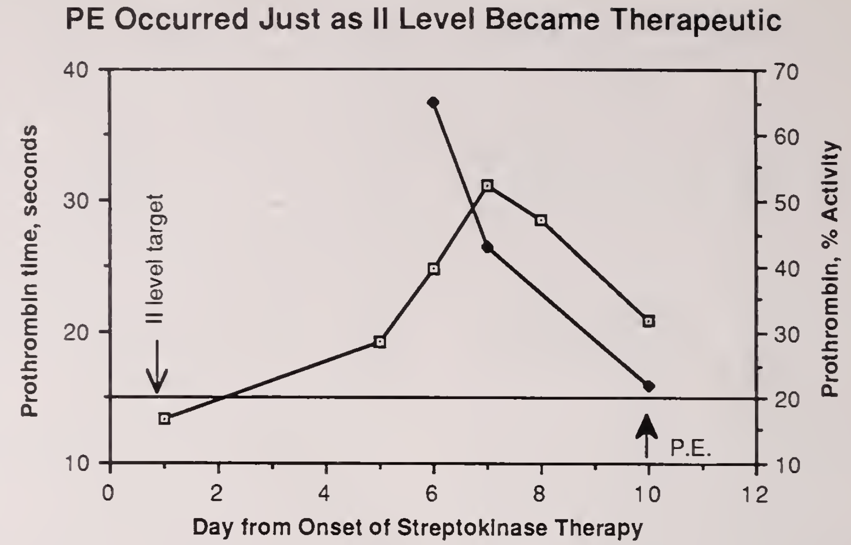

FIGURE 5 - Prothrombin time in the patient described, correlated with the Factor II level as well as with clinical events. On the day of pulmonary embolization, meaningful anticoagulation was just being achieved, even though the prothrombin time had suggested adequate anticoagulation for several days.

Because of the ability to discriminate active from inactive vitamin-K-dependent clotting factors in immunoassays (*vide supra*), there has been recent interest in the use of functional Factor II or Factor X assays (or functional/nonfunctional ratios) as an alternative tool to the prothrombin time in monitoring warfarin anticoagulation. Preliminary studies by Bruce Furie and coworkers suggest that monitoring with the functional prothrombin immunoassay may allow the risk in stable patients to be lowered to less than 1%. It is attractive to speculate that such tools will also one day help us better to manage complicated patients, in whom the prothrombin time is untrustworthy.

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rheumatology corner

Drug-drug interaction with the use of antirheumatic drugs

Harold T. Arneson, M.D., and Roger S. Colton, M.D.+*

Patients with arthritis frequently have other significant health problems. Drugs used to treat arthritis may interact with other drugs with deleterious effects. This article reviews some of these common interactions.

Acetyl salicylic acid (ASA or aspirin) provides pain relief and diminishes inflammation. The acetylated form of aspirin has a high affinity for albumin-binding, thereby displacing other drugs.[1] In therapeutic dosage (1.2 grams or greater/4 ASA tablets per day), this drug enhances the pharmacologic effect of other drugs by displacing them from protein-binding, leaving more drug available for pharmacologic action. Such drugs include: 1) Phenytoin and other anticonvulsants, 2) anticoagulants, including crystalline warfarin sodium, and 3) oral hypoglycemic agents. It is important to regularly check blood levels of these drugs in the presence of aspirin. ASA can be used with these drugs if a constant dose of ASA is maintained and the less-bound drug is regulated by periodic determination of blood levels.

Aspirin displaces other nonsteroidal anti-inflammatories (NSAIDs).[2] Adding another NSAID such as peroxicam to ASA may diminish the blood levels of peroxicam by 20%. All other NSAIDs have variable diminution in their binding power and are less effective when taken with aspirin. A "one-plus-one" effect is reduced usually to a ratio of 1.8 or less when aspirin is used with other nonsteroidals. In spite of these properties, other nonsteroidals can be used in combination with aspirin or aspirin derivatives with significant benefit. NSAIDs affect platelets and infrequently may cause bruising and bleeding. ASA "poisons" the platelets, creating potential bleeding from platelet dysfunction. The use of other nonsteroidals may temporarily inhibit platelet function for 24 to 48 hours.

TABLE

Pharmacologic effects associated with drug combinations

A. Increased drug effect caused by the use of ASA with:
   1) warfarin
   2) anticonvulsants
   3) hypoglycemic agents

B. Diminished drug action associated with:
   1) a nonsteroidal anti-inflammatory with ASA
   2) Penicillamine with ferrous sulfate

Absorption of aspirin in the stomach can lead to diminished protection of the gastric mucosa.[3] Adding ASA to a drug such as indomethacin or peroxicam may strikingly increase the potential for GI bleeding because the inhibition of protective prostaglandin function in the stomach, as well as increase the potential of bleeding from platelet inhibition. This can be circumvented by the use of a nonacetyl salicylate such as disalcylate, magnesium-choline salicylate, or sodium salicylate. An individual with predisposition to GI bleeding (history of acid-peptic disease) should avoid the use of aspirin and other nonsteroidal anti-inflammatories.

Most nonsteroidals, except ASA, can significantly affect renal blood flow by the inhibition of renal prostaglandin.[4] Most striking have been indomethacin, fenoprofen, and meclofenamic acid. Other nonsteroidals, except sulindac, can cause renal impairment from diminished effective renal plasma flow. If BUN or creatinine are abnormal, it is prudent to consider alternative drug therapy.

Other drug interactions that may occur with antiarthritic drugs include increase in elevation of serum uric acid when low-dose salicylates (i.e., less than 2 grams a day) are used.

Salicylates have a uricosuric effect but can inhibit the uricosuric action of probenecid. ASA should be avoided when probenecid is used as a uric acid lowering agent.

Methotrexate is used in the treatment of psoriatic arthritis and active progressive rheumatoid arthritis. ASA may compete metabolically with methotrexate, but currently, no conclusive data suggest that significant adverse effects occur with this combination. Nitrous oxide has recently been proposed to have the potential for drug-drug interaction with methotrexate; in the dosage used for treatment of rheumatoid arthritis it seems quite unlikely that this would be a significant threat to the arthritic patient.

Corticosteroids, in combination with salicylates, cause increased renal excretion of salicylate. The dosage of salicylates may need to be adjusted when corticosteroids are

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Risk Management in Practice

Maintaining Defensible Medical Records (Part Three)

MMIE Risk Management Committee Paul S. Sanders, M.D., Chairperson

The Physician's Office Chart

To promote efficient practice, office medical charts should be maintained in a manner that is responsive to physicians' individual needs and styles. However, certain basic charting parameters must also be followed to maximize protection against patient injury and malpractice liability.

In a group practice where more than one physician may treat the same patient, chart entries must be consistent, complete, and accurate so that errors of omission or commission are not made by colleagues relying on the chart. In a malpractice action, plaintiff attorneys examine the medical chart carefully for inconsistencies and often compare the entries by several physicians in the same office.

Inconsistent charting practices by a solo physician also can handicap the defense of a malpractice lawsuit. For example:

Dr. X, a family physician, was sued for an alleged failure to diagnose breast cancer. A 42-year-old patient had complained of a lump in her left breast. The office chart note read "Lump L breast. Benign?" The patient returned in three months for an unrelated complaint. The office note for this visit included the comment, "L breast lump about same. Watch." According to his records, Dr. X saw the patient six times during the next 11 months for general medical problems. None of his notes mentioned the breast lump. Two months after her last visit, the patient was seen by a surgeon who recommended a biopsy of the breast lump. The diagnosis was of an inoperable malignancy. The patient sued Dr. X, alleging that the lump continued to grow, that Dr. X failed to evaluate the changes and therefore missed the diagnosis. Dr. X argued in his defense that the lump remained unchanged during the 12 months he treated the patient. At trial, the patient's attorney used Dr. X's own records to convince a jury that the physician had not examined the breast after the second visit. The absence of a follow-up note about such a significant finding as a breast lump, the attorney argued, is evidence that the breast was not examined. The jury awarded the patient $450,000.

There are no specific requirements for the contents of medical charts. Standard entries should include: history, allergies, medication use, present complaints, clinical findings and impressions, X-ray and lab reports, recommended treatment and follow-up, referrals, consultations, and anything else the physician considers significant.

Additional chart entries that help the physician maintain an accurate record of exams and treatment of the patient, and which also provide a solid foundation for the defense of a malpractice action include:

Return visit date: This note protects the physician against the negligent patient who fails to return as advised and then claims he was not told to return.

Patient noncompliance: Patients are often injured as a result of their own carelessness or neglect in following medical advice. Documentation of a patient's failure to follow instructions or recommendations can be critical in defending physicians against claims of negligence involving injuries actually caused by the patient's own lack of compliance.

Canceled and failed appointments: As with documentation of patient noncompliance, a recorded pattern of inattention to scheduled appointments has helped defend many physicians against unmeritorious claims.

Phone conversations: Physicians should document the substance of all telephone conversations in which medical advice is given or drug refills are authorized. A large number of malpractice suits center on disputes between patients and physicians about what was said in a phone conversation. In one case, a pediatrician lost a $600,000 lawsuit in which he claimed he advised a parent to take her child to the emergency department if the child's fever did not subside within the next four hours. He did not hear from her again. The following week he learned that the child had died from untreated meningitis after the phone call. The parents sued the pediatrician, claiming he told them there was no need for him to see the child until after the weekend. The physician denied that claim, but the lack of a note about the call could not overcome the parents' testimony.

Physicians can avoid this malpractice hazard either by making notes on a phone message pad when they are away from the office but still on-call (and still practicing medicine), or by dictating notes into a pocket-sized recorder for transcription the next day.

Prescriptions and refills: All prescriptions and refills for medications, including the name, dosage, and amount of each, should be documented in the chart. Refills phoned to the pharmacy by an aide should include the aide's initials. A consolidated medication record is recommended rather than entry of prescriptions in the progress notes. Such a form allows the physician to see the patient's medication history at a glance and avoid overprescribing or the prescription of contraindicated drugs.

Note: Articles in this series are not legal advice. Readers should obtain specific legal advice from a qualified attorney.

Rheumatology Corner *cont. from p. 589*

added to the drug regime. When corticosteroid dosage is reduced, salicylate levels may increase because of diminished urinary excretion and, particularly in children and the elderly, salicylate intoxication may occur.

Penicillamine, a second-line drug for rheumatoid arthritis, can be inactivated when taken at the same time as ferrous sulfate.[5] On occasion, this may be the cause of "penicillamine failure." Giving ferrous sulfate at meals and penicillamine between meals avoids potential loss of an effective second-line agent.

References

1. Kelley WN, et al.: Textbook of Rheumatology (2nd ed). Philadelphia: W B Saunders Co, 1985.
2. McCarty DJ: Arthritis and Allied Conditions (10th ed). Philadelphia: Lea and Febinger, 1985.
3. The renal effects of nonsteroidal anti-inflammatory drugs. Symposium. Am J Med 80 (2B), August 1986.
4. Utsinger PD, et al.: Rheumatoid Arthritis. Philadelphia: Lippincott, 1985.
5. Huff BB (ed): Physicians' Desk Reference (40th ed). New Jersey: Barnhart, Oradell, 1986.

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BC/BE Psychiatrist wanted immediately as an independent contractor for 15-20 hours per week in a campus outpatient clinic. Duties include evaluation, psychotherapy and medication management of University students, staff and faculty. Contract is for an academic nine month year with additional hours in summer session negotiable. Attractive compensation. Send letter of interest with curriculum vitae to Jane Crowley, M.D., Boynton Health Service, 410 Church Street SE, Minneapolis, MN 55455 or call (612) 624-1444.

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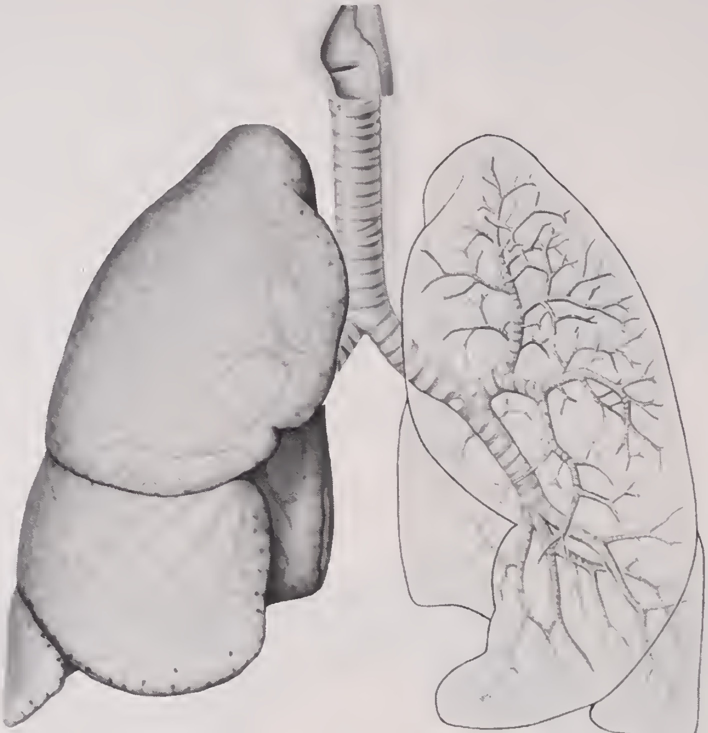

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Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

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OCTOBER 1987

1-3 **Heart Assist Devices and Heart Replacement** Abbott Northwestern Hospital; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Sarah S. Ventres, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

4-16 **Orient Adventure** North Central Medical Conference; The Orient. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

9 **Chemical Exposures: Emergency Response and Management** St. Paul-Ramsey Medical Center; St. Paul Ramsey Medial Center, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

9-10 **Third Annual Knapp Rehabilitation Center Conference on Head Trauma Rehabilitation** Metropolitan Medical Center and Hennepin County Medical Center; Pillsbury Auditorium, Minneapolis, Minnesota. CONTACT: Deanna Sanderson Sackrider, Knapp Rehabilitation, 900 South 8th Street, Minneapolis, Minnesota 55404; (612) 347-3950.

9-10 **Ambulatory Surgery Update** Park Nicollet Medical Foundation; Naegele Auditorium, Park Nicollet Medical Center, Minneapolis, Minnesota. CONTACT: Elaine Anderson, Director of Professional Education, Park Nicollet Medical Foundation, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 927-3703.

10 **Annual Meeting of Southern Medical Association** Southern Minnesota Medical Association; Gustavus Adolphus College and Holiday House, St. Peter, Minnesota. CONTACT: N.G. Hepper, M.D., Mayo Clinic, Rochester, Minnesota 55905; (507) 284-3478.

10 **Children's Heart Clinic First Annual Symposium: Pediatric Cardiology for the Primary Practitioner** Children's Heart Clinic; Education Center Auditorium, Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Children's Heart Clinic, 2545 Chicago Avenue, Suite 106, Minneapolis, Minnesota 55404; (612) 871-4660.

12-16 **Aspiration Cytology** CME, University of Minnesota Medical School, Minneapolis, Minnesota; Bell Institute of Pathology, 2-116 Moos T, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

12-26 **The Danube River Cruise** North Central Medical Conference; Vienna to Instanbul. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

14-17 **2-D/Doppler and Color Flow Imaging in Congenital Heart Disease** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Rita Kunz, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

16 **Fourth Annual Geriatrics Conference: Common Neurologic and Psychiatric Problems of the Elderly and Their Management** Hennepin County Medical Center & Hennepin Faculty Associates; Pillsbury Auditorium, Hennepin County Medical Center, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, HCMC, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

16-17 **Advanced Gyn Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

20 **General Surgery-CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (612) 262-4881.

21-24 **The Twenty-First Annual Orthopedics and Trauma Conference** Hennepin County Medical Center & Hennepin Faculty Associates; Radisson Plaza Hotel, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, HCMC, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

22-24 **National Behavioral Pediatrics Conference** CME, University of Minnesota Medical School; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

22-24 **Fourth Annual Trauma Course** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

23 **Front Line Neurology** Abbott Northwestern Hospital; Marriott City Center, Minneapolis, Minnesota. CONTACT: Tim Schuh, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

24-25 **Update in Cardiovascular Diseases** Mayo Clinic/Mayo Foundation; Judd Hall, Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

26-28 **Clinical Reviews** Mayo Clinic/Mayo Foundation; Mayo Civic Auditorium, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

28-30 **Internal Medicine Review** CME, University of Minnesota Medical School; Mayo Memorial Auditorium, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

30 **Cardiology 1987, Update For the Practicing Internist** Hennepin Faculty Associates, Hennepin County Medical Center; Pillsbury Auditorium, Hennepin County Medical Center; Minneapolis, Minnesota 55415; (612) 347-2075.

31 **Ischemia of the Lower Extremities: Recognition and Treatment** Midwestern Heart Lung Clinic; Hyatt Regency Hotel, Nicollet Mall, Minneapolis, Minnesota. CONTACT: Wendy Wolf, Midwestern Heart Lung Clinic, 2545 Chicago Avenue, Suite 611, Minneapolis, Minnesota 55404; (612) 871-4771.

NOVEMBER 1987

6 **E.T. Bell Pathology Symposium** CME, University of Minnesota Medical School; Holiday Inn Crowne Plaza, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minneosta 55455; (612) 626-5525.

6 **Advanced Concepts in Cardiac Pacing** Abbott Northwestern Hospital; Radisson Plaza Hotel, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

6 **Chemical Exposures: Emergency Response & Management** St. Paul-Ramsey Medical Center; St. Paul-Ramsey Medical Center, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6 **Pediatric Gastroenterology: Relevant Concepts for the Practitioner** Minneapolis Children's Medical Center; Education Center; Minneapolis Children's Medical Center, Minneapolis, Minnesota. CONCTACT: Kathy Ingerson, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

6-7 **Communication & Relationship Patterns Between Mothers and Daughters** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **American College of Physicians - Minnesota Scientific Meeting** Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Gerald R. Onstad, Department of Medicine, Hennepin County Medical Center, 701 Park Avenue, Minneapolis, Minnesota 55415; (612) 347-2703.

6-7 **Nutrition in the 80s** CME, University of Minnesota Medical School; Earle Brown Continuing Education Center, St. Paul Campus, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

7-8 **Minnesota Society of Clinical Pathologists Fall Tumor Seminar** Minnesota Society of Clinical Pathologists; Crown Plaza Hotel. CONTACT: Teri Davids, MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

8 **ENT For The Primary Care Physician** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

8 **Pre-Term Labor** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

9-11 **Clinical Reviews** Mayo Clinic/Mayo Foundation; Mayo Civic Auditorium, 2nd Avenue, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

12-14 **Clinical Strategies in Primary Care** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

13 **AIDS Conference** Hennepin County Medical Center and Hennepin Faculty Associates; Pillsbury Auditorium, Hennepin County Medical Center, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, HCMC, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

13-14 **Urological Laser Surgery** Abbott Northwestern Hospital; Abbott Northwestern Hospital, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

14 **Minnesota Society of Anesthesiologists Fall Scientific Program** Minnesota Society of Anesthesiologists; L'Hotel Sofitel, Bloomington, Minnesota. CONTACT: Doug Koentop, M.D., University of Minnesota, Anesthesiology Department, Minneapolis, Minnesota 55455; (612) 624-6997.

19-20 **CNS Disease and Trauma** St. Paul-Ramsey Medical Center; Holiday Inn Town Square, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

20 **Conference on the Growth in Children** CME, Medical School, University of Minnesota; Radisson University Hotel, Minneapolis, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

20-21 **Primary Care Symposium** Methodist Hospital Family Medicine Department; Registry Hotel, Bloomington, Minnesota. CONTACT: David Williams, M.D., 6500 Excelsior Boulevard, St. Louis Park, Minnesota 55440; (612) 932-5190.

DECEMBER 1987

3-5 **Cardiopulmonary Medicine** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

15 **Pediatrics — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

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Family Practitioner, General Internist, and General Surgeon to join 8-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

OB/GYN: Central Minnesota Obstetrics & Gynecology, PA of St. Cloud, Minnesota, is seeking BE/BC OB/GYN to join a rapidly growing practice in central Minnesota. Guaranteed salary with excellent fringe benefits. Please send CV to: Michael C. Flanagan, M.D., 2025 Stearns Way, Suite 114, St. Cloud, Minnesota 56301. 2-11/87

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's thirteenth largest lake. Good hunting and fishing. Modern nine-year old hospital. Twenty miles to University Campus. Call or write: Robert Bosl, M.D., Starbuck Clinic PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Physician- Board certified/board eligible psychiatrist with background in the treatment of chemically dependent individuals. Position offers a competitive salary, basic 40-hour week with limited on-call responsibility, malpractice coverage, 30 days paid vacation, and other excellent fringe benefits in a JCAH-accredited, progressive 802-bed medical center, having 72,000 outpatient visits per year, adequate staffing, including physician extenders, and offers research opportunities. The city of St. Cloud, Minnesota, and the surrounding area boasts of high quality family living for its residents who enjoy clean air, a wide variety of four-season outdoor recreational opportunities, excellent hunting and fishing in the "Land of 10,000 Lakes" and outstanding educational facilities which include three universities. Located between the Twin Cities of Minneapolis and St. Paul and northern lake country. Financial assistance to defer cost of relocation. Equal Opportunity Employer. Write or call: Thomas Plombon, Personnel Service, Veterans Administration Medical Center, St. Cloud, Minnesota 56301; (612) 252-1670, ext 619. *2-11/87

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Obstetricin/Gynecologist: Marshfield Clinic is seeking a board certified or eligible obstetrician/gynecologist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The clinic is adjacent to a 110-bed JCAH-accredited hospital. Marshfield Clinic is a 250-physician, multispecialty private group practice offering a very competitive salary and fringe benefit package. Send CV and references to: Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449. Or you may call collect at (715) 387-5498. *3-12/87

General Internal Medicine: Marshfield Clinic is seeking a board certified or eligible general internist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, eductional, and cultural opportunities easily accessible. The center currently includes three internists. Marshfield Clnic is a 250-physician, multispecialty private group practice offering a very competitive salary and fringe benefit package. Send CV and references to: Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449. Or you may call collect at (715) 387-5498. *3-12/87

Family Practice: Join group in western suburb of Minneapolis specializing in outpatient family practice, 40-45k with bonus, excellent vacation, education and benefit package. No call, no hospital duty. For more detailed information call or write: NOW CARE Medical Center, 13031 Ridgedale Drive, Minneapolis, Minnesota 55343; (612) 593-9010. Mr. John Kohner. 1-10/87

Internist BE/BC to join two young internists in growing practice in Michigan's beautiful Upper Peninsula. New local hospital. Campus for Michigan State University Medical School. Community of 15,000. Send CV or call: Drs. Spender and Kuehnl, 218 South 10th Street, Escanaba, Michigan 49829; (906) 786-1563. (R)

Internal Medicine: Busy three-physician internal medicine group seeks additional associate. Competitive salary with opportunity for rapid advancement. Located in northwestern Minneapolis suburb. Contact: Dr. Stec, PO Box 29188, Minneapolis, Minnesota 55429; (612) 428-2454. 3-12/87

Psychiatrists: Our exclusive client, a rapidly growing national organization committed to providing high-quality cost-effective patient-oriented mental health and substance abuse services, has two immediate full-time staff openings in Minneapolis, Minnesota. (1) Adult Psychiatrist, half outpatient, half inpatient, salary to $117,000; (2) Chemical Dependency Psychiatrist, outpatient, salary to $100,000. Both positions will accept either board eligible or board certified; both positions involve direct services, supervision and consultation in a multidisciplinary clinical setting. Professional teams include psychiatrists, LCPs, LPs, CCSWs, Psychiatric Nurses, and Certified Chemical Dependency Counselors. Liberal benefit package of 20% of base salary plus bonus potential of up to 10% plus paid malpractice plus negotiable relocation expenses plus client organization will pay our agency service fee. If you think that you'd enjoy the freedom and independence of private practice with none of the financial risks, total personal and professional satisfaction, and highly attractive hours, please write or call collect in confidence, at (612) 926-6584, Jerry Neren, Recuiter, MedSearch Corp., Southdale Medical Building, 6545 France Avenue South, Edina, Minnesota 55435. 2-11/87

Wanted: Obstetrician/Gynecologist to join board-certified specialist, OB/GYN. Starting salary $110,000. North Dakota commmunity—hunting, fishing, local college. Contact: Joseph Adducci, M.D. Phone: (701) 572-2376. 2-11/87

Board Certified Surgeon Seeking Two Family Practitioners to join a well-established clinic in a pleasant southwestern Minnesota community. Very modern facilities include a fully equipped lab and computerized office. Excellent salary and benefits. Send inquiries to: Glick & Wiens Clinic, PA, Atten: Dallas Glick, M.D., 308 North 8th Street, Mountain Lake, Minnesota 56159 or telephone collect (507) 427-2121. 1-10/87

Family Physician Needed: Immediate need for BC/BE family physician to join two established family physicians in private practice in northwest Iowa community of 5,000. Modern clinic across the street from JCAH hospital. Excellent salary and fringe benefits with partnership opportunity. Locum tenens opportunity available also. Call collect: (712) 324-2511 or contact: Sheldon Family Practice Associates, 206 North 7th Avenue, Sheldon, Iowa 51201. 4-1/88

New Orleans: Unique opportunity for primary care physician to join progressive, growth-oriented practice. The appropriate candidate will work in office setting, share hospital and on-call responsibilities. First-year salary of $60,000 and incentive. Call or write (include CV and references): C. Andrew DeAbate, M.D., or Diane Sasson, 3655 Veterans Boulevard, Metairie, Louisiana 70002; (504) 455-5555. 1-10/87

Southern Minnesota: Desire family practice/OB physician who shares an ethic of respect for human life to join established practice with board-certified internist to replace family practice/OB physician who is leaving the state. Excellent schools, recreational areas, hospital, and nursing homes. Contact: Paul J. Wright, 803 Fourth Street, Jackson, Minnesota 56143; (507) 847-3571. 1-10/87

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Physiatrist/Medical Director Physical Rehab: United Hospital is seeking a board eligible/board certified physiatrist to be Medical Director of Physical Rehabilitation. Position is less than full-time and offers private practice opportunity. Interested applicants send CV to: Zondal Miller, M.D., c/o Medical Staff Office, United Hospital, 333 North Smith Avenue, St. Paul, Minnesota 55102. Equal Opportunity Employer. *1-10/87

Luxury House For Rent In Aspen, Colorado, 4BR, 2 1/2 baths; located within minutes of five ski areas; exceptionally furnished; with all amenities, stereo, color TV, hot tub, fireplaces, etc. Contact: Dick Huffman at (612) 374-4662. 4-1/88

Internal Medicine BC/BE for multispecialty clinic of 17 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, radiology, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, and pathology. Other specialties in town are ophthalmology, and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy between Kraft, 3M, Pantasote, AMPI, and agribusinesses. Three excellent school systems in addition to a college. Contact: Robert Stevens at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota (507) 354-4101. 4-1/88

New Ulm, Minnesota: Family Practice Physician BC/BE for multispecialty clinic of 17 board certified physicians for family practice, internal medicine, pediatrics, orthopedics, general surgery, radiology, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, and pathology. Other specialties in town are ophthalmology and urology. Historic city of 15,000 located 90 miles south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balance economy between Kraft, 3M, Pantasote, AMPI, and agribusinesses. Three excellent school sysems in addition to a college. Contact: Robert Stevens at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota; (507) 354-4101. 4-1/88

Family Practice Physician, Pediatrician, and OB/GYN - St. Cloud: BE/BC to join supportive primary care staff in successful and innovative staff-model HMO. New clinic facility. Full range of fringe benefits (competitive salary, liberal vacation, two weeks' education leave, retirement fund, etc.) Must be sensitive to women's issues. Dr. Gary Strandemo, Central Minnesota Group Health Plan, 1245 15th Street North, St. Cloud, Minnesota 56301; (612) 253-5220. EOE. 4-1/88

Southwestern Minnesota Community of 1,500 is seeking a primary care physician to join another physician in an active family practice (non-HMO) clinic. A 17-bed hospital and 41-bed intermediate care nursing facility are located within the community. Excellent location and potential for personable, aggressive individual in a quiet, rural setting. Preferred BC/BE. Send inquiries to: Timonthy E. Nealy, M.D., Adrian Medical Clinic, Adrian, Minnesota 56110, (507) 483-2845; or Charlotte Heitkamp, Administrator, Arnold Memorial Hospital, Adrian, Minnesota 56110-0279; (507) 483-2668. (R)

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Internal Medicine Section: Multispecialty group of 71 physicians seeking internist with subspecialty in endocrinology and/or rheumatology. Some general medicine. Large referral area in lake region of west central Minnesota. Competitive salaries, excellent pension, vacation, and sabbatical programs. Send CV to: Patricia D'Aquila, M.D., Willmar Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201, or call (612) 231-5000. 3-11/87

Internal Medicine: Busy three-physician internal medicine group seeks additional associate. Competitive salary with opportunity for rapid advancement. Located in northwestern Minneapolis suburb. Contact: Dr. Stec, PO Box 29188, Minneapolis, Minnesota 55429; (612) 428-2454. 3-11/87

Family Physician who enjoys obstetrics wanted to join a progressive family-practice-oriented group in Wadena, Minnesota. This is an excellent opportunity for a self-starter who enjoys work, as the clinical practice is busy. Beautiful area, great community for family. For details contact: Dr. Tim Schmitt, (218) 631-1360, or James Lawson, Administrator, Tri-County Hospital, Wadena, Minnesota 56482; (218) 631-3510. (R)

Ramsey Clinic, St. Paul-Ramsey Medical Center Department of Physical Medicine and Rehabilitation seeks a full-time department head. Applicant will serve as department head at St. Paul-Ramsey Medical Center, but does not carry this title with the university appointment, and as such, the candidate would be responsible for administrative as well as teaching and clinical practice, which includes program development, resident, medical student, allied health professional education, and research development in the Department of Physical Medicine and Rehabilitation in this University of Minnesota-affiliated teaching hospital. This four-physiatrist department provides inpatient and outpatient rehabilitation services including active brain and spinal cord injury programs, disability assessment, and off-campus outreach activities. Applicants should be board certified in PM&R and qualified according to university guidelines for appointment at the assistant professor level. Apply with CV to: John W. McBride, M.D., Cardiology Office, St. Paul-Ramsey Medical Center, 640 Jackson Street, St. Paul, Minnesota 55101. Closing date for applications: November 1, 1987. The University of Minnesota, Ramsey Clinic, and St. Paul-Ramsey Medical Center are equal opportunity educators and employers and specifically invite and encourage applications from women and minorities. 2-10/87

Chairman, Department of Orthopedics, St. Paul-Ramsey Medical Center (SPRMC) and Ramsey Clinic (RC). SPRMC, located in St. Paul, Minnesota, is a major teaching affiliate of the University of Minnesota and a major referral and trauma center. Ramsey Clinic, servicing St. Paul-Ramsey Medical Center, is a multispecialty group practice with extensive regional referral and outreach programs. The successful candidate must be qualified to administer a department of orthopedics within a group practice and to lead faculty and residents in service, education, and research. Administrative and clinical experience, including the management of trauma and the capability of program development are required. The candidate is expected to qualify for appointment at the professor or associate professor level; salary commensurate with experience. Qualifications for University of Minnesota associate professorship will include 4-6 years post-residency, a professional distinction in research, and a demonstrated effectiveness in teaching. Qualifications for University of Minnesota professorship will include 9-12 years post-residency, a national reputation in research, and a demonstrated effectiveness in teaching and advising. The University of Minnesota and St. Paul-Ramsey Medical Center and Ramsey Clinic are equal opportunity educators and employers and specifically invite and encourage applications from women and minorities. Address inquiries to: Erhard Haus, M.D., Ph.D., Professor, Department of Laboratory Medicine and Pathology, University of Minnesota, Chairman, Search Committee for Chief of Orthopedics, St. Paul-Ramsey Medical Center/Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-8825. 2-10/87

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Pediatrician wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Pediatric Department of four physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or phone (612) 780-7032. (R)

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OB/GYN: Interstate Medical Center of Red Wing, Minnesota, is seeking BE/BC OB/GYN surgeon to join an established three-physician OB/GYN department. Guaranteed salary with excellent fringe benefits. Contact: John Walsh, M.D., Interstate Medical Center, PO Box 54, Red Wing, Minnesota 55066. 4-11/87

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Internist needed to join well-established practice in a community of 45,000. First-year salary guarantee with excellent fringe benefits. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. (R)

Family Practice, St. Cloud, Minnesota: The St. Cloud Medical Group, a multispecialty group made up of 23 physicians is seeking an additional full-time, board eligible and/or board certified family practitioner to join its department of ten other family physicians. The St. Cloud Medical Group is a young group of physicians that offers a family practitioner a quality opportunity in the way of call schedules and financial rewards. The facility is a very progressive and growing medical force in Central Minnesota and will offer the new family practitioner and his or her family a quality opportunity in one of the fastest growing communities in the state of Minnesota. The facility also has two affiliate branches in Clearwater and Cold Spring, Minnesota. St. Cloud, with a population of over 70,000, is home to three major colleges and offers many cultural and educational opportunities to the physician and his or her family members. The St. Cloud community is recognized for its fine public and parochial school systems along with its family-oriented community activities. If interested in joining a progressive and growing medical group in Central Minnesota, please contact and/or call collect: LaRue V. Dahlquist, M.D., President, and/or Daryl G. Mathews, Administrator, at (612) 251-8181, or send your CV to the St. Cloud Medical Group, PA, 1301 West St. Germain, St. Cloud, Minnesota 56301. 4-10/87

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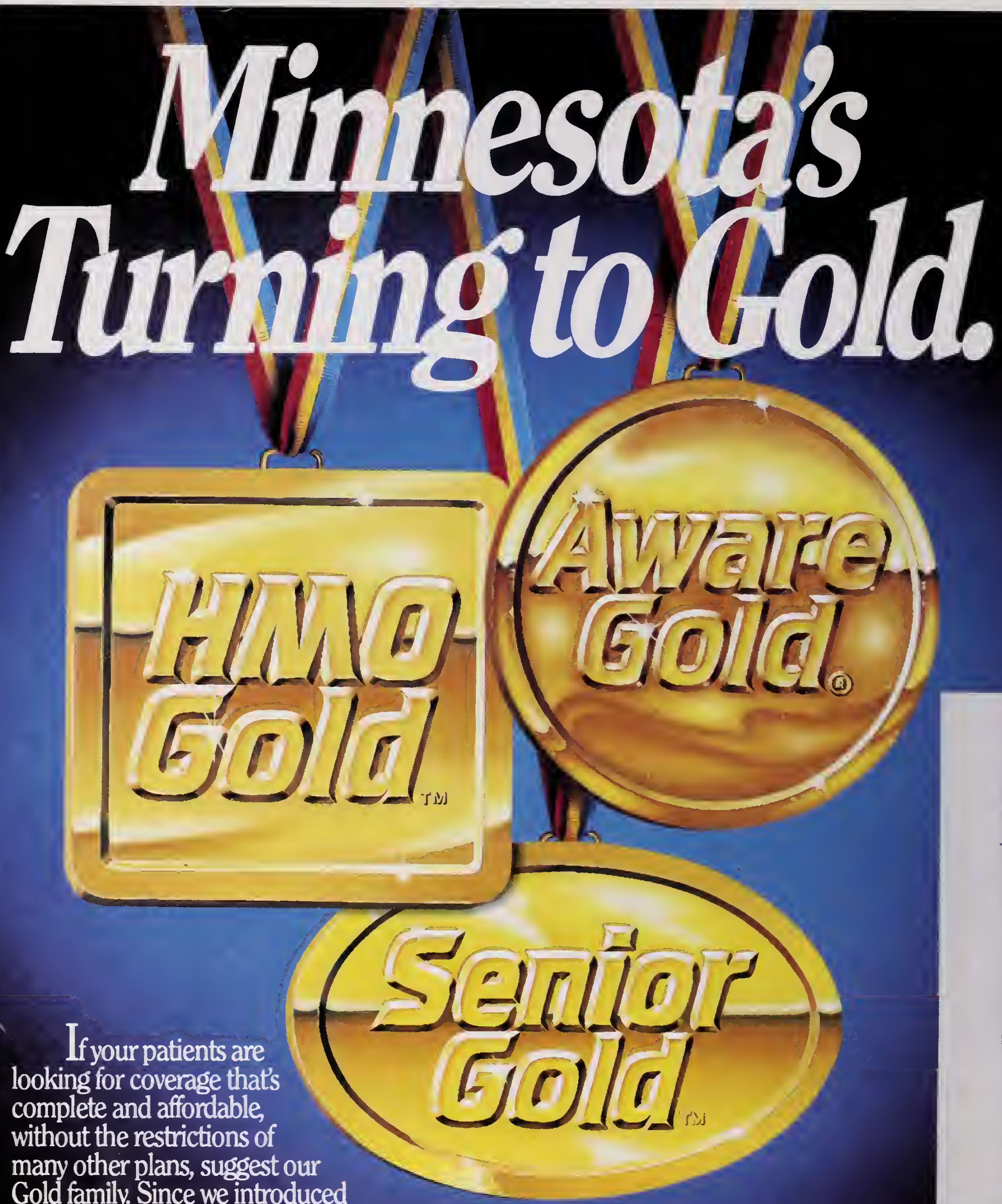

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INDICATIONS AND USAGE: Edema associated with congestive heart failure, hepatic and renal disease, including the nephrotic syndrome.

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CONTRAINDICATIONS: Anuria. Hypersensitivity and in patients in hepatic coma or in states of severe electrolyte depletion. Although Bumex can be used to induce diuresis in renal insufficiency, any marked increase in blood urea nitrogen or creatinine, or the development of oliguria during therapy of patients with progressive renal disease, is an indication for discontinuation of treatment.

WARNINGS: Dose should be adjusted to patient's needs. Excessive doses or too frequent administration can lead to profound water loss, electrolyte depletion, dehydration, reduction in blood volume and circulatory collapse with the possibility of vascular thrombosis and embolism, particularly in elderly patients.

Prevention of hypokalemia requires particular attention in patients receiving digitalis and diuretics for congestive heart failure, hepatic cirrhosis and ascites, states of aldosterone excess with normal renal function, potassium-losing nephropathy, certain diarrheal states, or other states where hypokalemia is thought to represent particular added risk to the patients.

In patients with hepatic cirrhosis and ascites, sudden alterations of electrolyte balance may precipitate hepatic encephalopathy and coma. Treatment in such patients is best initiated in the hospital with small doses and careful monitoring of the patient's clinical status and electrolyte balance. Supplemental potassium and/or spironolactone may prevent hypokalemia and metabolic alkalosis in these patients.

In cats, dogs and guinea pigs, Bumex has been shown to produce ototoxicity. Since Bumex is about 40 to 60 times as potent as furosemide, it is anticipated that blood levels necessary to produce ototoxicity will rarely be achieved. The potential for ototoxicity increases with intravenous therapy, especially at high doses.

Patients allergic to sulfonamides may show hypersensitivity to Bumex.

PRECAUTIONS: Measure serum potassium periodically and add potassium supplements or potassium-sparing diuretics, if necessary. Periodic determinations of other electrolytes are advised in patients treated with high doses or for prolonged periods, particularly in those on low salt diets.

Hyperuricemia may occur. Reversible elevations of the BUN and creatinine may occur, especially with dehydration and in patients with renal insufficiency. Bumex may increase urinary calcium excretion.

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Patients should be observed regularly for possible occurrence of blood dyscrasias, liver damage or idiosyncratic reactions.

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Drugs with nephrotoxic potential and bumetanide should not be administered simultaneously.

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Probenecid should not be administered concurrently with Bumex.

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Interaction studies in humans have shown no effect on digoxin blood levels.

Interaction studies in humans have shown Bumex to have no effect on warfarin metabolism or on plasma prothrombin activity.

Pregnancy: Bumex should be given to a pregnant woman only if the potential benefit justifies the potential risk to the fetus.

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Pediatric Use: Safety and effectiveness below age 18 not established.

ADVERSE REACTIONS: Muscle cramps, dizziness, hypotension, headache and nausea, and encephalopathy (in patients with preexisting liver disease).

Less frequent clinical adverse reactions are weakness, impaired hearing, rash, pruritus, hives, electrocardiogram changes, abdominal pain, arthritic pain, musculoskeletal pain and vomiting.

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DOSAGE AND ADMINISTRATION:

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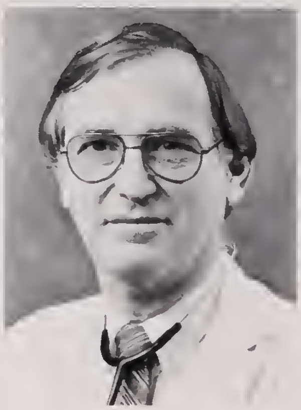

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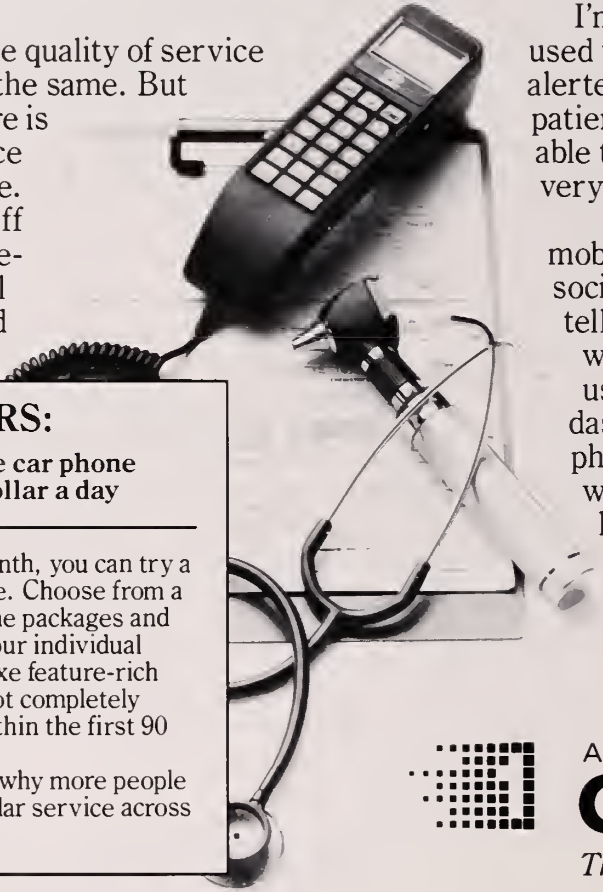

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Time and Water

James R. Walker, M.D., took this cover photograph deep in North Canyon, a tributary of the Colorado River. He used a Pentax K-1000 with a 50 mm lens and 64 ASA Kodachrome film. To capture this Grand Canyon shot at sunrise, he used a tripod for one-second exposure and a cable release.

Dr. Walker, in family practice with the Mork Clinic for 14 years, enjoys photography and the outdoors.

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editor's notebook

The Corporate Transformation of Medicine in Minnesota: The Grand Finale and The Grand Finesse

Twenty-fifth and last in a series

Richard L. Reece, M.D.

> *"We were reasonably calculating in our approach. We consciously developed a new rhetoric, for one thing. We began using the language of the marketplace, rather than the language of medicine. We began talking in terms of 'providers and consumers' instead of 'doctors and patients,' for example. This, of course, was and still is highly offensive to many people in medicine, but we felt the old language was almost like the language of religion and; thus, harder to use when trying to effect widespread change."*
>
> Paul Ellwood, M.D., as quoted in "Life on the Cutting Edge," by William Swanson, *Twin Cities*, July 1985

> *"Yes, thinking, doing, and listening are all important, but doctors must provide a special kind of leadership for their patients and families of their patients—we call it management of the case—and I admit that for a leader the art of making himself understood verbally is not an accomplishment best left to chance, or casual neglect."*
>
> Alan Gregg, M.D., "Leadership: A Practice of Medicine," *The Diplomat*, April 1943

This is my last editorial on the corporate transformation of medicine in Minnesota. If you'll recall, I started these pieces four years ago. The first editorial was in November 1983 in a special issue of *Minnesota Medicine*, "The Coming of Corporations." Before I get to the reasons for ending these editorials, I shall explain my title: "The Grand Finale and the Grand Finesse."

The Grand Finesse

I am writing these words after moderating a panel discussion, "Managed Care, Business, and You," between Richard Burke, chief executive officer of United HealthCare; Laird Miller, president of Health Systems Management, Inc., and formerly corporate director of Health Systems at Honeywell; and myself. This discussion took place before the Ramsey County Medical Society.

What struck me that evening was that Burke and Miller were not talking the same language as physicians. The physicians came loaded for bear, angry, and obviously poised to engage in a rough and tumble exchange about how corporate care had betrayed them and their patients and had turned the physicians' worlds upside down.

But the exchange never took place. Miller and Burke, perhaps unwittingly, finessed the audience by restricting their talks to the code language of the marketplace—"purchasers," "vendors," "providers," "consumers," "risk management," "data systems," and "quality management." Not once did Miller or Burke speak of "physicians" or "patients." Why should they? Clearly these two marketplace representatives could control the agenda by speaking their language rather than that of the audience. You can't debate if you speak separate tongues. It takes two to argue.

Regaining Control

If we physicians are going to gain any control over the agenda, we must do three things:

1) We must learn the language of the marketplace and absorb its underlying concepts;

2) We must insist on reintroducing the words "physician" and "patient" back into the discourse. We can achieve the first by reading management books, by rising to executive positions, or by taking MBA or

other degrees from flexible health-oriented programs, such as the MBA/health care "concentration" offered at St. Thomas college;

3) We must return to and strengthen the physician-patient relationship—the fundamental relationship that made us what we are.

What finally forced PHP to the wall in its confrontation with the PHP Oversight Committee sprang directly from the physician-patient relationship. A sufficiently broad base of physicians convinced patients that doctors were serious by pulling out of PHP or by persuading patients that doctors had grounds for discontent. The public, which, after all, is made up of real or potential patients, became convinced that something was either wrong, unstable, or uncertain about the future of PHP. By their actions or their speech, or their reports in the media, physicians were talking the language patients understood.

Until physicians rebelled on a broad scale, patients couldn't follow the language. But when physicians wrote letters to their patients, saying they were leaving a plan, patients got the message. In any event, language is important. Here is how Uwe Reinhardt explained the importance of language in a Cleveland speech on the medical marketplace "brawl."

"Why can't we for 11% of the GNP have a more tranquil system? The reason we can't is that we have set it up as a brawl. For the people out in the street, this is a difficult brawl to follow because it is not conducted in English. It is conducted in code language. When you write a paper for any group of health care providers you may not use the word 'money.' It is not allowed to be mentioned. So I have a PC and you know you can program them to search for words and substitute. And whenever I do a health care provider speech, whenever it says 'money' I say take it out and put in 'quality.' That's what goes in. So you will find me giving the same speech on Wall Street where I put 'money' in it because it's all they care about, and then I will put it in the machine and put in 'quality of care,' and I give the same damn thing to the AMA, and they both love it."

Reasons for Ending Editorial Series

Why end now?

■ The so-called "corporate transformation" is now suspended in mid-course in Minnesota. The competing health plans are in place; the hospitals are consolidating and closing, and the HMOs have shaken down to the final four. But the physicians remain unconvinced and openly cynical that corporate care offers either quality or economy to their patients. HMOs now command more than 50% of the market here. If you include HMO-inspired indemnity plans and triple option plans, I suspect the "managed plan" market share is closer to 75%.

■ With the help of William Swanson, an experienced reporter and editor for *Corporate Report* and *Twin Cities* magazines, and also a freelance writer, I will be publishing these editorials in a book, to be released this winter. Now is the time to wrap up these outpourings of opinion and observation into a package form and to draw conclusions.

■ The Twin Cities' health care market has reached a critical phase. After five years of fierce competition and widespread discounting, many health care organizations—HMOs, hospitals, large clinics, and individual doctors—find themselves on the brink of insolvency. HMOs are about to react to this by raising rates; hospitals by eating into their capital reserves to stay alive; large clinics by de-emphasizing their HMO connections, re-emphasizing their fee-for-service side, and entering joint relationships to shore up their finances to survive; and physicians—in large and small organizations, inside and outside of HMOs—are in open revolt, questioning basic values of the competitive ethic, swearing off capitated plans that place risk on them and seeking new ideas that will lead them out of the competitive morass and away from the risk abyss.

Counterrevolution in Full Bloom

To put it another way, the counterrevolution is now in full bloom and is a broad grassroots movement led by a band of physicians known as the PHP Oversight Committee. For the last 18 months, this group has challenged the assumptions of the PHP plan leadership that the number of participating doctors and hospitals must be narrowed to make the plan more economical; that financial risks must be imposed on hospitals and physicians; that the health care dollar is fixed and therefore dollars must be reapportioned from the high-income procedural specialists to the low-income cognitive generalists; that the blame for cost-overruns rests solely with doctors and not with low premiums and high demand for new technologies; that "provider bashing," shifting blame for inflation to hospitals and cutting their revenues, will be acceptable to the public and purchasers; and that all the phases of competitive reform—competing health plans, rewarding "quality" providers, and giving the Medicare and Medicaid business to "quality plans"—constitutes an inevitable sequence of events.

Nothing is Inevitable

No trend is inevitable, especially if it causes too much pain to too many people in society. What caused PHP to settle with the PHP Oversight Committee was too much pain for too many participants in the health care system. The Oversight Committee was clearly on the verge of voting out the PHP Board; corporations were beginning to shift out of PHP because of the continuing negative media coverage; physicians were pulling out of PHP in significant numbers because they had no logical financial reasons for staying in; and the general public was flooding legislators' ears and the capitol switchboard, wanting to know what in the hell was going on. There was, in short, a run on the PHP bank of trust, legitimacy, and goodwill, and state government had to step in before the situation spun completely out of control.

What the Counterrevolution is All About

What is this counterrevolution all about? Victor Fuchs, professor of economics at the Stanford School of Business, summed up this counterrevolution best in the April 30 issue of the *New England Journal of Medicine*. People in the United States, he said, are growing uneasy about the current revolution—DRGs, HMOs, PPOs, high deductibles and copayments, and stringent cost containment—for six reasons:

1) Our uninsured population—most of whom are employed—now makes up 15% of our people and grows greater every day. Such phenomona as AIDS, aging, and lack of access add to this burden.

2) Those who pay for care—employers and workers—resent paying for themselves and the uninsured as well. The insurance industry in Minnesota is up in arms on this issue, and health care organizations in Minnesota who form a pool to pay for the uninsured are about to take a big hit.

3) Despite protestations of HMOs and other managed plans to the contrary, the perception is rising among health care professionals and the public that quality is eroding. Physicians, in particular, don't buy the argument that 30% or so of waste exists in the health system and that you can cut cost indefinitely without destroying quality.

4) There is a rising concern that the physician-patient relationship is being sacrificed on the altar of cost-efficiency. Doctors are saying you can't serve three masters—the corporations, the public, and technology. Some technology—i.e., CAT scans, MRI devices, bone marrow transplants for leukemia, intensive care for newborns, bypass for coronary disease, hip transplants for osteoarthritis, and the new Merck drug for lowering cholesterol—are so good that physicians cannot deny or restrain their use. Partly because of these effective new technologies, some 5% of sick participants now consume 60% to 70% of care. To ask physicians to shoulder the risk for these technologies, which may result in bills of $100,000 to $200,000 in complicated cases, is simply unreasonable. Asking them to do so places the physician in a morally indefensible position. Besides, assuming risks for cost overruns runs counter to the physician's most basic objective—to provide as much care as possible for those who need it.

5) The increasing financial difficulties of large health care organizations disturb the public. It is no secret, for example, that most Twin Cities hospitals and HMOs are in serious financial distress. To cite Fuchs, health care organizations "will try to postpone the day of reckoning by mergers and restructuring, but competition will drive some of them up against a wall . . . "

6) Fear is mounting among health care employees that they will lose their jobs. Minnesota likes to boast its health care industry employs 280,000 people. Yet many of these people work for hospitals, an endangered organizational species. In the last five years, we've had the merging, closing, and realignment of 21 Twin Cities hospitals. Only North Memorial Medical Center, in a growing suburban area, and the teaching hospitals, supported by public funds, remain unaligned. Furthermore, at least 20% of rural hospitals stand on the edge of the financial precipice.

More Government

So where does this dreary picture I've painted leave us? There are many astute observers—such as Relman, Ginzberg, Reinhardt, and Fuchs—who say the only answer is more government. This may be true. We will need more government funds for catastrophic disease for the elderly, for AIDS, and for the other uninsured people. Furthermore, the government has just announced it will boost Medicare HMO funds by 13.5% in 1988.

Even in the face of this government support for HMOs for the Medicare enrollees, I, for one, believe physicians have an opportunity to expand the private side of medicine. But surely I jest, you say. After all, isn't private medicine dead?

Consequences of Competition

I don't believe so. From my vantage point, the massive discounting of HMO prices, which has now rippled down to hospitals and physicians for five years, has seriously underfunded the system. The result is the collapse of many hospitals, many clinics, and many practices. The PHP Oversight Committee revolt, which resulted in scores of doctors and clinics pulling out of PHP, has brought home to patients the consequences of HMO price wars, and it brought home to state government that patients want a stable health care system, with reasonable assurance that they, the patients, can have access to doctors of their choice.

Relationships Count

What the Oversight Committee demonstrated was that *relationships* between patients and doctors and between doctors themselves—count. Once doctors began to vote with their feet to leave PHP, the patients themselves were up in arms and acted by flooding politicians with distress calls. The public abhors a health care vacuum, and politicians got the message. I fully expect competitive health care and the distortions it creates to be a campaign issue in the race between David Durenberger and Skip Humphrey.

The people in Minnesota want a choice in the health care they seek. If HMO discounting practices deprive them of enough choices, people will react. HMOs are aware of this proclivity for choice. That is why all Minnesota HMOs are pushing triple options and fee-for-service plans.

Physicians' Choices

I believe we physicians should also push flexible fee-for-service plans and other flexible options, inside and outside HMOs. But how?

■ First, we have to change the language. Anytime you're asked to sign a contract bearing the name "provider," insist the name "physician" be inserted. Correct health care people who use the term "consumer," by saying: "Oh, do you mean 'patient'?"

■ Second, we must create more organized ways to talk to patients. You can talk to them one-on-one about the trade-offs between indemnity plans and HMOs; you can give them pamphlets showing comparisons between various HMOs and between HMOs and fee-for-service plans; and you can speak before various senior citizen and service club groups about what is going on in the marketplace and what it portends for the patient-physician relationship. I believe the Minnesota Medical Association could help promote and arrange many of these things, including endorsing the idea, or at least not standing in the way, of a physician-patient federation.

■ Third, I believe we ought to think about how we might form a fee-for-service analogue of InterStudy, a think tank that disseminates information about new forms of health care delivery. Twenty years ago, the conservative movement was considered dead in America. But, through the work of serious scholars, a series of thoughtful position papers at conservative think tanks, such as the American Enterprise Institute and the Hoover Institute, gave the conservative movement intellectual and political legitimacy, and eventually, the political initiative. Such an effort would have to have high purpose, intense pragmatism, and persuasive logic, all articulated and delivered in moderate language.

■ Fourth, we must realize we are engaged with corporations for control of the public's mind. It requires systematic, organized, and purposeful work to persuade the public the physician deserves a prominent place in controlling the organizations that provide care. This work requires a well thought out strategy, directed and controlled by physicians, public relations advisors, and poll-takers, all engaged in a high-stake game to help shape the public's perception of what's best for them. We must also inform the public of the business stakes in joining health plans. As Dr. Arthur Caplan, a biomedical ethicist at the University of Minnesota, has pointed out: "What does informed consumer choice mean if critical information about how a plan is organized, who's at risk financially, and how profits are divided aren't part of the presentation?"

■ Fifth, we must acknowledge that medicine and health care have joined the economic mainstream of America. No longer are we a sacrosanct bastion, isolated against the market forces and entrepreneurial drives and the downside risks of economic activity. If we're going to be part of the mainstream, we must communicate with other major participants in our language *and* theirs. Toward that end, *Minnesota Medicine* is changing its skin. Starting in January, we'll be changing from strictly a clinical journal to more of a health system/industry journal. We will continue to talk about the patient-physician relationship, but we'll also invite articles by those who view medicine as a service industry.

■ Sixth, I believe physicians can cope with the new environment. We are smart enough, tough enough, and flexible enough to adapt to the disciplines and practices of the marketplace, yet compassionate and committed enough to protect patients against the ragged edges of capitalism. In the end, the physician will draw the bottom line as to what corporations can do. To survive in the health care business, corporations must coexist with physicians and listen to them, or there is no business. But we must coexist with the world of business too. To stay a united profession, we're going to have to deal with realities of managed care, entrepreneuralism, and competition. It won't be easy.

■ Seventh, we physicians must reach our patients and the public through the media. Keep in mind that about 20% of Americans don't have a regular doctor, so you can't reach everybody in your office. There are various ways to increase your visibility in the media—advertising, news stories, or even newspaper columns—but for practical purposes, an old-fashioned letter to the editor is still best. Letters to the editor cost nothing and are widely read.

Here are excepts of a letter by Paul Bowlin, M.D., chairman of the Board of Directors, Hennepin

County Medical Society, in the October 3, 1987, Twin Cities *StarTribune*. This is a superb letter—reasoned, informative, educational, and persuasive. It appeared under the title of "Shopping for Quality Health Care."

"Physicians and consumers need to have a heart-to-heart talk. Health care is costly. These costs continue to escalate. The public tells us it wants high-quality care above all else. Can this be achieved at a reasonable cost? I believe it can, if consumers consider four issues when pursuing health care:

■ **Access:** *Freedom to choose which specialist, which hospital, which mental-health provider, which brand-name drug, and which laboratory test increases costs. If consumers want such choices, they must pay accordingly in their health-care premium. If they contemplate low-cost health insurances, they should read the fine print. Most, if not all, such insurance has access restrictions.*

■ **Quality:** *Buyers should ask insurance programs for surveys of customer satisfaction. Objective quality measurements should become available in the next two to three years.*

■ **First-dollar** coverage: *Prospective buyers of health-care insurance should ask themselves how much out-of-pocket expense they can afford. If they demand first-dollar coverage with no out-of-pocket expenses, they should expect high insurance premiums.*

First-dollar coverage tends to promote unnecessary use of physician-office visits, emergency-room visits, requests for laboratory tests, requests for drugs, and even requests for surgical operations that may be of questionable value. Our health-care system works best when the consumer includes finances in the decision to use the system.

■ **Discipline:** *All elements of the health-care system must use discipline for the system to function economically and still provide quality care. Physicians must discipline themselves to use diagnostic testing, hospitalization, drug and surgical treatment in the most cost-effective manner consistent with high-quality care. Health-care insurance companies are beginning to identify the "cost effective" physician with sophisticated data systems . . . Physicians in our community are frustrated and angry. They feel that the health-care system is continuing to demand high-quality care but is unwilling to finance that level of quality. Press characterizations of physician concerns as limited only to matters of compensation are simplistic and off the mark.*

Physicians are concerned that underfunding of the health-caare system has reached a level at which the quality of care they desire to provide, and which consumers demand, cannot be met . . . "

Space limitations prevent me from reprinting Dr. Bowlin's entire letter. But I regard his letter as a model of what the rest of us ought to be doing—informing society in a responsible, constructive, and timely fashion what's going on in a troubled health-care system.

Concluding Thoughts

As I conclude this series of editorials, written over a four-year span, this thought springs to mind: that noble social experiment, known as the corporate transformation of medicine in Minnesota, hangs suspended in mid-course. When I say "mid-course," I mean two things: 1) In Minnesota, we now have exactly 50% HMO market penetration; and 2) In Minnesota, we are roughly halfway through the three stages of competitive reform—system reform with competing plans, provider reform with "quality" hospitals and "quality" physicians being rewarded with patients, and access reform with "quality" competing plans caring for all those who need care.

I'm not confident this competitive-reform agenda will be completed, i.e., the bringing of low-priced, high-quality, broad-based care to the people of Minnesota. The big obstacles are physicians. And for good reasons. From what we've seen so far, we're not convinced competitive reform achieves any of its objectives. Further, we're beginning to think the trade-offs—de-professionalization and the treating of physicians as an interchangeable labor supply; driving of "surplus" and often "quality" physicians out of the system; our loss of clinical autonomy to those who dictate the price and conditions of practice; the instability of a system subject to price wars and volume discounts; the failure to inform patients of fine print, and financial instability of health plans; the large-scale shifting of financial risk to physicians of health plans; and the continuing failure to define, measure, or reward "quality"—are not worth the price of supporting and encouraging further competitive reform.

We have other concerns as well—the continuing escalation of cost outlays as the number of uninsured Minnesotans continues to mount, the nagging worry that commercialism will undermine our sense of ethics and other values, the darkening suspicion that quality must surely erode in an underfunded system, and the anxiety that this brave new world of health care consumerism will leave a lot of misinformed, mishandled, and even injured patients in its wake.

But perhaps I'm looking through the glass too darkly. Perhaps with an aroused profession with a closer relationship with patients, we'll be able to help patients make more informed choices, prevent their diseases, promote their health, and choose among the innovative therapies, ideas, and technologies only a dynamic and competitive system can produce. RLR

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president's letter

Back on the Right Track

Something exciting is happening at the Minnesota Medical Association. It is a return to a perspective and mission that we have set aside for awhile. I see it occurring in a lot of ways and sense we are back on the right track.

Your Association leaders are excited that physicians are participating in organized medicine to establish a new agenda for health care in Minnesota. For example, in the first half of my year as MMA president, I have participated in Association changes that will enhance physician leadership and improve our impact on health care policy. We are strengthing the voice of physicians through improved communication, outreach and liaison, and greater physician action. Here are a few highlights:

■ In January, *Minnesota Medicine* will have a new look and a new format. You will see a broader view of health care through insightful interviews, feature stories, practice management information, legal updates, clinical review articles, state and national health care news, and special MMA reports.

■ In addition to our newsletter, the *Monitor*, all members will receive timely policy and legislative updates. News releases and radio information will carry the physician perspective from MMA, and publications will discuss physician issues.

■ Many of you recently received an MMA survey on competition in medicine. The results of this survey will help us define how the changing competitive health care structure has affected the way we practice medicine. It will also provide us with the facts we need to support our legislative efforts. Watch for a full report in the January issue of *Minnesota Medicine*.

■ To enhance lobbying efforts, physician leaders will have a much stronger role in the legislative process. And to guarantee those views are heard, we are traveling around the state, meeting with physicians and legislators. Plus, we are meeting on a regular basis with government agency heads, the Foundation for Health Care Evaluation and Board of Medical Examiners, and insurance companies to reassert our role in establishing health care standards.

■ In addition to implementing the Association workplan, MMA committees are moving forward on a new course. They have assumed a leadership role in establishing standards of care, and in addressing tort reform, practice scope for allied health professionals, Board of Medical Examiners regulations, utilization review, competition in medicine, and Medicaid reform.

■ The Hospital Medical Staff Section is establishing a new liaison committee with hospital administrators to improve risk management and implement changes in rural health care delivery. I am particularly interested in this area, and I plan to work personally to improve our ties to Minnesota hospitals.

L. Ashley Whitesell, M.D.

■ On the public health front, MMA is playing a major role in addressing the AIDS crisis and home health care standards. We will receive a grant to study emergency medical services and plan to initiate new review programs in pediatric care.

■ While continuing with their regular activities, our Physician's Foundation members are establishing a corporate visitation program with Minnesota businesses, and the MINNPAC Board is working hard to involve more physicians in the political process.

■ We did not raise MMA dues this year because we have better fund management, but we have also transferred a lot of our administrative funding into projects oriented to physician action. Membership is increasing and participation is at an all-time high. Probably for the first time, MMA leaders will be meeting to review completion of our House of Delegates assignments in the middle of the year. January marks the beginning of new projects, but innovative change will continue throughout the year.

Together these efforts make us a stronger force in setting a new agenda for health care in Minnesota. Together, these efforts put us back on the right track.

LAW

Brian came to us with

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At a moment's notice.

With one phone call, our trauma team is ready. And because we have the fastest helicopter available, when every minute counts we can get your patients' the treatment they need as fast as possible.

Our commitment to emergency medical care is uncompromising. For example, in 1984 we developed 1st Care, to educate farm families in the important steps that need to be taken in the event of an accident involving limbs.

We're also publishing, and distributing *Trauma Rounds,* a periodical for doctors dedicated to providing new information on emergency treatment, case studies, and trauma-related research.

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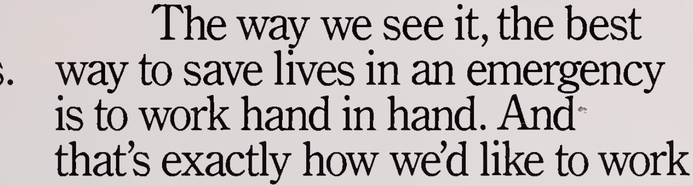

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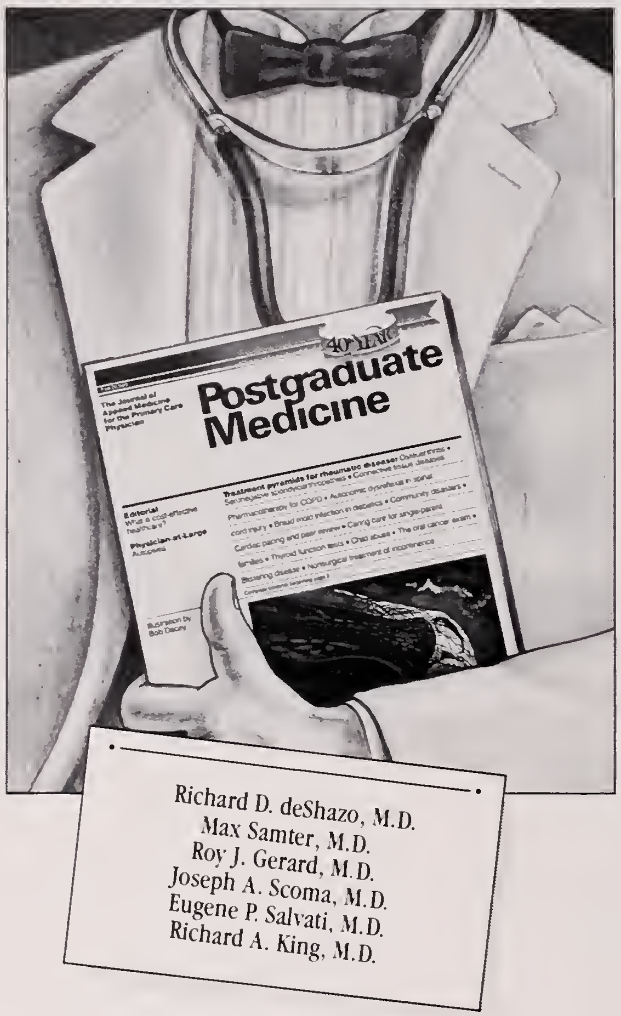

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November 1
Symposium: Focus on Family Practice . . . Roy J. Gerard, M.D., Coordinator

November 15
Symposium: Colon & Rectal Disease . . . Joseph A. Scoma, M.D., Coordinator
Special Article: Colon & Rectal Disease 1947-1987 . . . Eugene P. Salvati, M.D.

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BRIEF SUMMARY

CONTRAINDICATIONS

There are no known contraindications to the use of sucralfate.

PRECAUTIONS

Duodenal ulcer is a chronic, recurrent disease. While short-term treatment with sucralfate can result in complete healing of the ulcer, a successful course of treatment with sucralfate should not be expected to alter the post-healing frequency or severity of duodenal ulceration.

Drug Interactions: Animal studies have shown that the simultaneous administration of CARAFATE with tetracycline, phenytoin, or cimetidine will result in a statistically significant reduction in the bioavailability of these agents. This interaction appears to be nonsystemic in origin, presumably resulting from these agents being bound by CARAFATE in the gastrointestinal tract. The bioavailability of these agents may be restored simply by separating the administration of these agents from that of CARAFATE by two hours. The clinical significance of these animal studies is yet to be defined.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No evidence of drug-related tumorigenicity was found in chronic oral toxicity studies of 24 months' duration conducted in mice and rats at doses up to 1 gm/kg (12 times the human dose). A reproduction study in rats at doses up to 38 times the human dose did not reveal any indication of fertility impairment. Mutagenicity studies have not been conducted.

Pregnancy: Pregnancy Category B. Teratogenicity studies have been performed in mice, rats, and rabbits at doses up to 50 times the human dose and have revealed no evidence of harm to the fetus due to sucralfate. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when sucralfate is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Adverse reactions to sucralfate in clinical trials were minor and only rarely led to discontinuation of the drug. In studies involving over 2,500 patients, adverse effects were reported in 121 (4.7%). Constipation was the most frequent complaint (2.2%). Other adverse effects, reported in no more than one of every 350 patients, were diarrhea, nausea, gastric discomfort, indigestion, dry mouth, rash, pruritus, back pain, dizziness, sleepiness, and vertigo.

DOSAGE AND ADMINISTRATION

The recommended adult oral dosage for duodenal ulcer is 1 gm four times a day on an empty stomach.

Antacids may be prescribed as needed for relief of pain but should not be taken within one-half hour before or after sucralfate.

While healing with sucralfate may occur during the first week or two, treatment should be continued for 4 to 8 weeks unless healing has been demonstrated by x-ray or endoscopic examination.

HOW SUPPLIED

CARAFATE (sucralfate) 1-gm pink tablets are supplied in bottles of 100 and in Unit Dose Identification Paks of 100. The tablets are embossed with MARION/1712.

Issued 3/84

References:

1. Grossman MI: *Scand J Gastroenterol* 58 (suppl 15):7-16, 1980.
2. Marks IN, in Hellemans J, Vantrappen G (eds): *Gastrointestinal Tract Disorders in the Elderly.* Edinburgh, Churchill Livingstone, 70-81, 1984.
3. Krentz K, Jablonowski H, in Hellemans J, Vantrappen G (eds): *Gastrointestinal Tract Disorders in the Elderly.* Edinburgh, Churchill Livingstone, 62-69, 1984.

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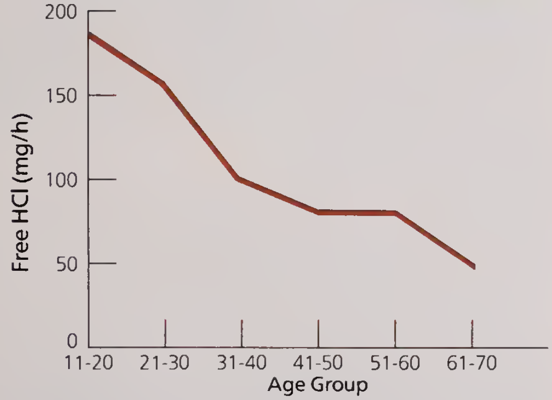
Declining gastric secretion and age[3]



CARAFATE® (sucralfate/Marion) makes sense as initial ulcer therapy for the elderly. Carafate provides ulcer healing rates comparable to H_2 antagonists without the risk of systemic side effects or drug interactions—an important benefit for older patients.

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Please see adjoining page for references and brief summary of prescribing information.

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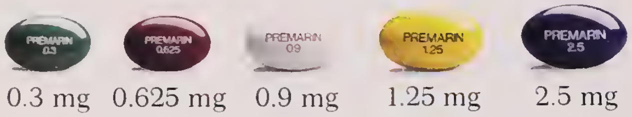

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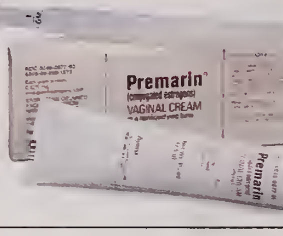
For atrophic vaginitis

PREMARIN®
(conjugated estrogens)

Vaginal Cream

0.625 mg/g



BRIEF SUMMARY *(FOR FULL PRESCRIBING INFORMATION AND PATIENT INFORMATION, SEE PACKAGE CIRCULARS.)*

PREMARIN® Brand of conjugated estrogens tablets, USP
PREMARIN® Brand of conjugated estrogens Vaginal Cream, in a nonliquefying base

1. ESTROGENS HAVE BEEN REPORTED TO INCREASE THE RISK OF ENDOMETRIAL CARCINOMA

Three independent, case-controlled studies have reported an increased risk of endometrial cancer in postmenopausal women exposed to exogenous estrogens for more than one year. This risk was independent of the other known risk factors for endometrial cancer. These studies are further supported by the finding that incidence rates of endometrial cancer have increased sharply since 1969 in eight different areas of the United States with population-based cancer reporting systems, an increase which may be related to the rapidly expanding use of estrogens during the last decade. The three case-controlled studies reported that the risk of endometrial cancer in estrogen users was about 4.5 to 13.9 times greater than in nonusers. The risk appears to depend on both duration of treatment and on estrogen dose. In view of these findings, when estrogens are used for the treatment of menopausal symptoms, the lowest dose that will control symptoms should be utilized and medication should be discontinued as soon as possible. When prolonged treatment is medically indicated, the patient should be reassessed on at least a semi-annual basis to determine the need for continued therapy. Although the evidence must be considered preliminary, one study suggests that cyclic administration of low doses of estrogen may carry less risk than continuous administration; it therefore appears prudent to utilize such a regimen. Close clinical surveillance of all women taking estrogens is important. In all cases of undiagnosed persistent or recurring abnormal vaginal bleeding, adequate diagnostic measures should be undertaken to rule out malignancy. There is no evidence at present that "natural" estrogens are more or less hazardous than "synthetic" estrogens at equi-estrogenic doses.

2. ESTROGENS SHOULD NOT BE USED DURING PREGNANCY

The use of female sex hormones, both estrogens and progestogens, during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing, in later life, a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated as not greater than 4 per 1,000 exposures. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have vaginal adenosis, epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are precursors of malignancy. Although similar data are not available with the use of other estrogens, it cannot be presumed they would not induce similar changes. Several reports suggest an association between intrauterine exposure to female sex hormones and congenital anomalies, including congenital heart defects and limb-reduction defects. One case-controlled study estimated a 4.7-fold increased risk of limb-reduction defects in infants exposed in utero to sex hormones (oral contraceptives, hormone withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 per 1,000. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. If PREMARIN is used during pregnancy or if the patient becomes pregnant while taking this drug, she should be apprised of the potential risks to the fetus, and the advisability of pregnancy continuation.

DESCRIPTION: PREMARIN (conjugated estrogens, USP) contains a mixture of estrogens, obtained exclusively from natural sources, blended to represent the average composition of material derived from pregnant mares' urine. It contains estrone, equilin, and 17α-dihydroequilin, together with smaller amounts of 17α-estradiol, equilenin, and 17α-dihydroequilenin as salts of their sulfate esters. Tablets are available in 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, and 2.5 mg strengths of conjugated estrogens. Cream is available as 0.625 mg conjugated estrogens per gram.

INDICATIONS AND USAGE: PREMARIN (conjugated estrogens tablets, USP): Moderate-to-severe *vasomotor* symptoms associated with the menopause. (There is no evidence that estrogens are effective for nervous symptoms or depression without associated vasomotor symptoms and they should not be used to treat such conditions.) Osteoporosis (abnormally low bone mass). Atrophic vaginitis. Kraurosis vulvae. Female castration.

PREMARIN (conjugated estrogens) Vaginal Cream is indicated in the treatment of atrophic vaginitis and kraurosis vulvae.

PREMARIN HAS NOT BEEN SHOWN TO BE EFFECTIVE FOR ANY PURPOSE DURING PREGNANCY AND ITS USE MAY CAUSE SEVERE HARM TO THE FETUS (SEE BOXED WARNING).

Concomitant Progestin Use: The lowest effective dose appropriate for the specific indication should be utilized. Studies of the addition of a progestin for 7 or more days of a cycle of estrogen administration have reported a lowered incidence of endometrial hyperplasia. Morphological and biochemical studies of the endometrium suggest that 10 to 13 days of progestin are needed to provide maximal maturation of the endometrium and to eliminate any hyperplastic changes. Whether this will provide protection from endometrial carcinoma has not been clearly established. There are possible additional risks which may be associated with the inclusion of progestin in estrogen replacement regimens. (See PRECAUTIONS.) The choice of progestin and dosage may be important; product labeling should be reviewed to minimize possible adverse effects.

CONTRAINDICATIONS: Estrogens should not be used in women (or men) with any of the following conditions: 1. Known or suspected cancer of the breast except in appropriately selected patients being treated for metastatic disease. 2. Known or suspected estrogen-dependent neoplasia. 3. Known or suspected pregnancy (see Boxed Warning). 4. Undiagnosed abnormal genital bleeding. 5. Active thrombophlebitis or thromboembolic disorders. 6. A past history of thrombophlebitis, thrombosis, or thromboembolic disorders associated with previous estrogen use (except when used in treatment of breast or prostatic malignancy).

WARNINGS: Estrogens have been reported to increase the risk of endometrial carcinoma (see Boxed Warning). However, a recent large, case-controlled study indicated no increase in risk of breast cancer in postmenopausal women. A recent study has reported a 2- to 3-fold increase in the risk of surgically confirmed gallbladder disease in women receiving postmenopausal estrogens.

Adverse effects of oral contraceptives may be expected at the larger doses of estrogen used to treat prostatic or breast cancer or postpartum breast engorgement; it has been shown that there is an increased risk of thrombosis in men receiving estrogens for prostatic cancer and women for postpartum breast engorgement. Users of oral contraceptives have an increased risk of diseases, such as thrombophlebitis, pulmonary embolism, stroke, and myocardial infarction. Cases of retinal thrombosis, mesenteric thrombosis, and optic neuritis have been reported in oral contraceptive users. An increased risk of postsurgery thromboembolic complications has also been reported in users of oral contraceptives. If feasible, estrogen should be discontinued at least 4 weeks before surgery of the type associated with an increased risk of thromboembolism, or during periods of prolonged immobilization. Estrogens should not be used in persons with active thrombophlebitis, thromboembolic disorders, or in persons with a history of such disorders in association with estrogen use. They should be used with caution in patients with cerebral vascular or coronary artery disease. Large doses (5 mg conjugated estrogens per day), comparable to those used to treat cancer of the prostate and breast, have been shown to increase the risk of nonfatal myocardial infarction, pulmonary embolism, and thrombophlebitis. When doses of this size are used, any of the thromboembolic and thrombotic adverse effects should be considered a clear risk.

Benign hepatic adenomas should be considered in estrogen users having abdominal pain and tenderness, abdominal mass, or hypovolemic shock. Hepatocellular carcinoma has been reported in women taking estrogen-containing oral contraceptives. Increased blood pressure may occur with use of estrogens in the menopause and blood pressure should be monitored with estrogen use. A worsening of glucose tolerance has been observed in patients on estrogen-containing oral contraceptives. For this reason, diabetic patients should be carefully observed. Estrogens may lead to severe hypercalcemia in patients with breast cancer and bone metastases.

PRECAUTIONS: Physical examination and a complete medical and family history should be taken prior to the initiation of any estrogen therapy with special reference to blood pressure, breasts, abdomen, and pelvic organs, and should include a Papanicolaou smear. As a general rule, estrogen should not be prescribed for longer than one year without another physical examination being performed. Conditions influenced by fluid retention, such as asthma, epilepsy, migraine, and cardiac or renal dysfunction, require careful observation. Certain patients may develop manifestations of excessive estrogenic stimulation, such as abnormal or excessive uterine bleeding, mastodynia, etc. Prolonged administration of unopposed estrogen therapy has been reported to increase the risk of endometrial hyperplasia in some patients. Oral contraceptives appear to be associated with an increased incidence of mental depression. Patients with a history of depression should be carefully observed. Pre-existing uterine leiomyomata may increase in size during estrogen use. The pathologist should be advised of estrogen therapy when relevant specimens are submitted. If jaundice develops in any patient receiving estrogen, the medication should be discontinued while the cause is investigated. Estrogens should be used with care in patients with impaired liver function, renal insufficiency, metabolic bone diseases associated with hypercalcemia, or in young patients in whom bone growth is not yet complete. If concomitant progestin therapy is used, potential risks may include adverse effects on carbohydrate and lipid metabolism.

The following changes may be expected with larger doses of estrogen:

a. Increased sulfobromophthalein retention.

b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.

c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by PBI, T_4 by column, or T_4 by radioimmunoassay. Free T_3 resin uptake is decreased, reflecting the elevated TBG; free T_4 concentration is unaltered.

d. Impaired glucose tolerance.

e. Decreased pregnanediol excretion.

f. Reduced response to metyrapone test.

g. Reduced serum folate concentration.

h. Increased serum triglyceride and phospholipid concentration.

As a general principle, the administration of any drug to nursing mothers should be done only when clearly necessary since many drugs are excreted in human milk.

Long-term, continuous administration of natural and synthetic estrogens in certain animal species increases the frequency of carcinomas of the breast, cervix, vagina, and liver. However, in a recent, large case-controlled study of postmenopausal women there was no increase in risk of breast cancer with use of conjugated estrogens.

ADVERSE REACTIONS: The following have been reported with estrogenic therapy, including oral contraceptives: breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea, premenstrual-like syndrome, amenorrhea during and after treatment, increase in size of uterine fibromyomata, vaginal candidiasis, change in cervical erosion and in degree of cervical secretion, cystitis-like syndrome, tenderness, enlargement, secretion (of breasts), nausea, vomiting, abdominal cramps, bloating, cholestatic jaundice, chloasma or melasma which may persist when drug is discontinued, erythema multiforme, erythema nodosum, hemorrhagic eruption, loss of scalp hair, hirsutism, steepening of corneal curvature, intolerance to contact lenses, headache, migraine, dizziness, mental depression, chorea, increase or decrease in weight, reduced carbohydrate tolerance, aggravation of porphyria, edema, changes in libido.

ACUTE OVERDOSAGE: May cause nausea, and withdrawal bleeding may occur in females.

DOSAGE AND ADMINISTRATION:

PREMARIN® Brand of conjugated estrogens tablets, USP

1. *Given cyclically for short-term use only:* For treatment of moderate-to-severe *vasomotor* symptoms, atrophic vaginitis, or kraurosis vulvae associated with the menopause (0.3 mg to 1.25 mg or more daily). The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible. Administration should be cyclic (eg, three weeks on and one week off). Attempts to discontinue or taper medication should be made at three- to six-month intervals.

2. *Given cyclically:* Osteoporosis. Female castration. Osteoporosis—0.625 mg daily. Administration should be cyclic (eg, three weeks on and one week off). Female castration—1.25 mg daily, cyclically. Adjust upward or downward according to response of the patient. For maintenance, adjust dosage to lowest level that will provide effective control.

Patients with an intact uterus should be monitored for signs of endometrial cancer and appropriate measures taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

PREMARIN® Brand of conjugated estrogens Vaginal Cream

Given cyclically for short-term use only: For treatment of atrophic vaginitis or kraurosis vulvae.

The lowest dose that will control symptoms should be chosen and medication should be discontinued as promptly as possible.

Administration should be cyclic (eg, three weeks on and one week off).

Attempts to discontinue or taper medication should be made at three- to six-month intervals.

Usual dosage range: 2 g to 4 g daily, intravaginally, depending on the severity of the condition.

Treated patients with an intact uterus should be monitored closely for signs of endometrial cancer and appropriate diagnostic measures should be taken to rule out malignancy in the event of persistent or recurring abnormal vaginal bleeding.

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letters to the editor

Gravity Treatment of Pseudo-obstruction of the Colon

David S. Arvold reported two cases of pseudo-obstruction of the colon and suggested colonoscopy be strongly considered as a diagnostic and therapeutic maneuver if the cecal diameter approaches 12 cm (*Minnesota Medicine,* August 1987).[1] If colonoscopy was unsuccessful or unavailable he suggested consideration of cecostomy. We recently observed a case of pseudo-obstruction of the colon that responded to positional changes. The patient developed abdominal distention 12 days following a total knee replacement. Gastrografin enema was unsuccessful in filling the entire colon, but no obstruction was demonstrated.

The bowel gas pattern was suggestive of a cecal bascule. The day following the gastrografin enema the cecum remained enlarged at 14 cm in diameter. The patient was placed in the right-side-down lateral decubitus position for 20 minutes to allow gas to collect in the left colon, and then placed in the prone position for 10 minutes; this resulted in resolution of the obstructive pattern on X-ray. There was also a decreased abdominal distention and the patient did well.

She had received three doses of demerol prior to onset of distention but also received multiple doses of demerol after relief of distention without recurrence of her symptoms, so demerol was not felt to be an important factor in precipitation of her pseudo-obstruction.

Positional maneuvers are useful both in diagnosis and treatment of obstruction especially in the elderly.[2] The patient normally is placed first on the right side to remove gas into the descending colon. However, if there is a mobile cecum, which can trap the gas as in the "cecal bascule" syndrome, the left lateral decubitus position should be used first to move gas out of the cecum. Placing the patient in the prone position will then facilitate movement of gas into the rectum. A rectal tube then may also be of help.

In the elderly population with poor intestinal tone, colonic caliber is often large, and strict criteria regarding dangerous degree of distention can be unreliable. Air fluid levels can occur without obstruction. Mobilizing gas with positional maneuvers can decrease cecal size, exclude obstruction, and facilitate evacuation. This should be considered as an economical and noninvasive initial approach to the problem of dilated bowel in the elderly.

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South St. Paul, MN

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perspectives

Unraveling the mystery of Sudden Infant Death Syndrome

Ralph A. Franciosi, M.D.

Dr. Franciosi is a pathologist and was director of the Minnesota SIDS Program at Minneapolis Children's Medical Center when he submitted this paper to Minnesota Medicine.

In the past, the term "crib death" was used to label a sudden, unexpected, and apparently unexplained death in an infant. In such cases, autopsies revealed no lethal lesions. Often foci of plasma cells and lymphocytes were seen within the mucosa of the upper airways, suggesting the probability that death was caused by a viral infection, although no specific lesions were observed.

Scientific inquiry into this problem was first championed by Dr. Abraham Bergman. An international conference in 1963 accumulated scientific data regarding the problem of "crib death."[1] A follow-up conference in 1969 established the medical diagnostic term Sudden Infant Death Syndrome (SIDS),[2] which we use today. Beckwith[3] defined SIDS as: "the sudden death of any infant or young child, which is unexpected by history, and in which a thorough postmortem examination fails to demonstrate an adequate cause of death." He alluded to the problem of lack of uniformity of opinion among pathologists regarding the lethality of certain anatomic lesions. However, he argued that the SIDS diagnosis can be established by a knowledgeable pathologist after adequate investigation. The information necessary for the diagnosis included medical history, complete autopsy, blood cultures, and ancillary studies as required, e.g., toxicology, X-ray.

This original SIDS definition was followed by epidemiological studies that documented SIDS as a problem in young infants who were apparently asleep. My personal experience over the past decade has influenced me to modify the original definition. I define SIDS as: "the sudden and unexpected death of an infant usually between two weeks and one year of age who is apparently asleep, and the postmortem examination does not reveal a conventionally accepted cause of death."

Although the current trend in the literature is to regard SIDS causation as muliple, my experience leads me to disagree with this; I believe the overwhelming majority of SIDS cases are a single entity that can be accurately diagnosed. No doubt, sudden and unexpected death in infants presents a diagnostic challenge to the pathologist. To make the diagnosis, essential information must be available from the medical history (e.g., serious illness, seizure disorder) and from the postmortem examination (e.g., autopsy, blood cultures), and the circumstances of death must be known (e.g., accidental injury). Inexperience in managing cases of sudden and unexpected infant death can result in misdiagnosis (e.g., myocarditis, sepsis, rhabdomyoma of the heart, adrenal hypoplasia, occult trauma).

The facts we know about SIDS are these: it occurs unexpectedly (no serious medical illness) in young sleeping infants, with an absence of conventionally accepted lethal lesions (e.g., myocarditis). SIDS infants who have died have been observed to have a sudden, silent, respiratory arrest that does not respond to resuscitation.

SIDS can be explained as a dysfunction of respiratory control during sleep. Ondine's Curse[4] is an example of a clinical disorder that may be similar. This clinically detected disorder of central hypoventilation presents in newborns, with death often occurring within the first few months of life. Although these cases have a clinically documented disorder of respiration during sleep, the autopsy does not reveal a lethal lesion. Presumably, the disorder is caused by a dysfunction of medullary respiratory centers. Interestingly, recent studies of SIDS cases have uncovered subtle abnormalities in the medulla.[5] The morphologic alterations involve glial cells and neurons. The glial cells, particularly astrocytes, are increased in number, and respiratory neurons have an immature architecture. The significance of these changes is the probability that they are morphologic markers of defective neurochemical control of respiration. Indeed, a study that we performed on the brainstem in SIDS infants showed a persistence of immature levels of met- enkephalin.[6]

I would speculate that SIDS is a specific entity caused by a developmental defect in the synchronization of endogenous respiratory rhythm and sleep state organization. This mechanism would explain the sleep-related death of a young infant and the absence of a lethal lesion on postmortem examination.

The possibility that SIDS is a predictable and preventable disease compels us to pursue research

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focused on developmental neurobiology. SIDS cases and the clinical condition of near-miss SIDS cases provide an opportunity for study that will increase our understanding not only of SIDS but also of other neurologic conditions of infancy, such as Ondine's Curse, seizure disorder, and autism.

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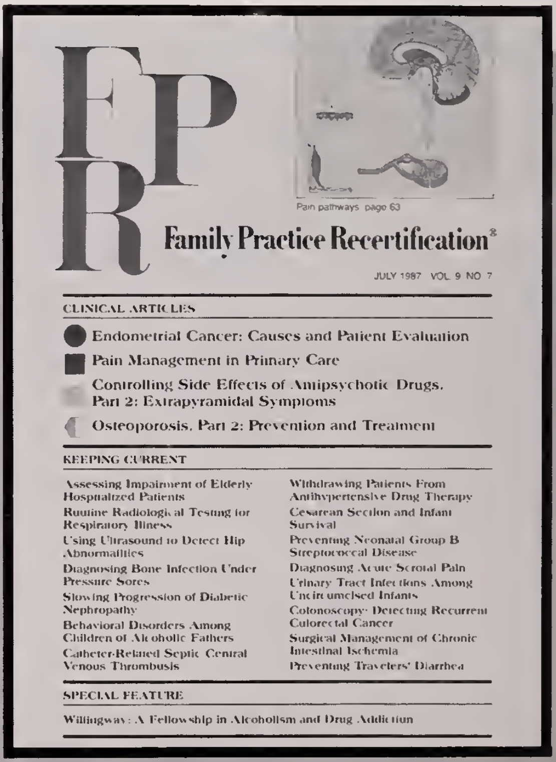

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contributions

Infant mortality in Sudden Infant Death Syndrome families: The Minnesota experience

Ralph A. Franciosi, M.D.; Jeff Goldhagen, M.D.+*

The siblings of Sudden Infant Death Syndrome (SIDS) victims have been reported to have an increased risk of SIDS.[1,2] However, the SIDS rate in identical and fraternal twins are concordant, implying that the cause of SIDS is not hereditary.[3] In addition, recent studies concluded that risk of SIDS in siblings has been overestimated.[4,5] This paper presents our experience in Minnesota with infant mortality in SIDS families.

Material and Methods

SIDS deaths occurring in Minnesota are registered in the Minnesota Sudden Infant Death Center at Minneapolis Children's Medical Center. We reviewed all SIDS cases entered between October 1, 1976, and August 1, 1986, and abstracted infant deaths in siblings. Our study included only cases confirmed by autopsy.

Results

There were 1,375 SIDS cases registered during the study period; 90% were autopsied. Six families experienced an additional infant loss; three were from SIDS and three were accidental. We describe the three non-SIDS cases to illustrate the importance of determining the circumstances of deaths that may mimic SIDS.

Case 1: J.O., a 12-week-old white male, died of SIDS. Two years previously, a 20-month-old sister had died of cervical cord contusion sustained in an accident. At the time, the infant was in foster care because her parents were being treated for substance abuse. The night of the accident, a family party was in progress on the first floor and the infant was put to bed, apparently asleep, upstairs. The bed was occupied by two other children, a 3-year-old brother and a 1-year-old cousin. Approximately one hour later, the brother alerted the foster parent that his sister was hurt. They found a large dresser tilted over the bed with open drawers pinning the infant's head and neck.

Case 2: S.W., a 23-week-old white female, was referred to Minneapolis Children's Medical Center (MCMC) for autopsy as a possible SIDS. The information forwarded with the body included ER notes but not a death investigation report. The autopsy did not reveal an explained cause of death. There were a small number of intrathoracic petechiae and bilateral pulmonary edema but no signs of trauma. The death investigation report revealed that the infant's head had been wedged between a waterbed mattress and the bed frame. A brother had died of SIDS two years previously. The parents had limited economic means. The father worked during the day and the mother in the evenings. On the night of the death, the father placed the infant on a waterbed, apparently asleep. He left to work on his car in the adjacent attached garage. When he returned about one hour later, he found the infant with her head wedged between the mattress and bed frame.

Case 3: P.R., a 27-week-old white female, was admitted to MCMC in a coma following a fall. The physical examination showed her to be a well-developed and well-nourished infant, unresponsive except to deep pain. Her pupils were fixed and dilated and bilateral retinal hemorrhages were observed. She died several hours after admission. The autopsy showed no external signs of trauma. There were bilateral retinal hemorrhages, and an acute subdural hemorrhage was noted associated with cerebral edema and herniation. The death investigation indicated that the infant had fallen from a bed and was shaken by a sibling attempting to revive her. A sister had died eight years previously of SIDS. The infant was the youngest of eight children, five of whom are younger than seven years old. The father works during the day and the mother in the evenings. On the day of the accident, the infant was in the yard with a 6-year-old sister, her father, and a neighbor. The sister brought the infant into the house for a feeding. She temporarily placed her on a waterbed and proceeded to prepare a bottle. Two younger siblings began bouncing on the bed, and the infant was catapulted to the floor. The sister rushed in and found the baby unresponsive and shook her. She ran out to her father who called for a rescue unit.

Discussion

The 1,375 SIDS cases registered in Minnesota over the ten-year study period included three siblings from three SIDS families (a recurrence rate of 2.2/1000 live births). This is

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surprisingly low when compared with the reported recurrence rate of 1-2%.[5] The overall SIDS rate in Minnesota is 2/1000 live births.

An unexpected observation was the death of three SIDS siblings from non-SIDS causes. In establishing the cause and manner of these deaths, the circumstances of death (death investigation) were essential. In Case 2, no anatomical explanation for death was apparent after autopsy. However, the scene investigation established the cause of death as accidental asphyxia. Autopsy did uncover traumatic causes of death in cases 1 and 3. However, the death investigation determined that the injuries resulted from accidents.

SIDS is a postmortem diagnosis that is established after obtaining data from the medical history, circumstances of death (death investigation), and autopsy. The diagnostic acumen of the pathologist is required to diagnose explained causes of death that can mimic SIDS, e.g., accidental asphyxia, occult trauma, sepsis, myocarditis, pneumonia, congenital heart disease, hyperthermia, and botulism.

Home monitoring of asymptomatic subsequent SIDS siblings is a controversial subject because no reliable test is available to predict SIDS.[6,7] Reports that subsequent siblings have a higher rate of SIDS[1,2] have been used as scientific evidence to justify home monitorings. However, recent studies indicate that the recurrence rate is overestimated.[4,5] Indeed, the most recent study concluded that the rate of SIDS in siblings did not differ significantly from control infants when the cases were matched for maternal age and birth order.[5] Epidemiological studies of SIDS have indicated that approximately one-third of cases occur in socioeconomically stressed families.[8] The literature reports an increased rate of post-neonatal infant mortality (SIDS and non-SIDS) among these families.[9,10] Our study indicates that a subset of SIDS families with socioeconomic stresses may have a higher risk for post-neonatal non-SIDS infant mortality.

Conclusion

Our experience at the Minnesota Sudden Infant Death Center over the past ten years indicates that the rate of SIDS in siblings is 2.2/1000 live births. This does not differ from the overall rate of 2/1000 live births. We noted that repeat infant mortality (non-SIDS) occurred in a subset of SIDS families, and we hope that a preventive public health approach will reduce subsequent infant mortality in SIDS families.

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CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. ***Cardiac Conduction.*** *CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1,243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.*
2. ***Congestive Heart Failure.*** *Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt).*
   Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. ***Hypotension.*** *Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.*
4. ***Acute Hepatic Injury.*** *In rare instances, significant elevations in enzymes such as alkaline phosphatase, CPK, LDH, SGOT, SGPT, and other symptoms consistent with acute hepatic injury have been noted. These reactions have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in most cases, but probable in some. (See PRECAUTIONS.)*

PRECAUTIONS

General. *CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.*

Drug Interaction. *Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)*

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. *A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed in rats.*

Pregnancy. *Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.*

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. *Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.*

Pediatric Use. *Safety and effectiveness in children have not been established.*

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences as well as their frequency of presentation are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%). In addition, the following events were reported infrequently (less than 1%):

Cardiovascular:	*Angina, arrhythmia, AV block (first degree), AV block (second or third degree — see conduction warning), bradycardia, congestive heart failure, flushing, hypotension, palpitations, syncope.*
Nervous System:	*Amnesia, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor.*
Gastrointestinal:	*Anorexia, constipation, diarrhea, dysgeusia, dyspepsia, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH (see hepatic warnings), vomiting, weight increase.*
Dermatologic:	*Petechiae, pruritus, photosensitivity, urticaria.*
Other:	*Amblyopia, dyspnea, epistaxis, eye irritation, hyperglycemia, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties.*

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, gingival hyperplasia, erythema multiforme, and leukopenia. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

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Pregnancy in Hmong refugee women

Laura E. Edwards, M.D.; Carol J. Rautio, B.A.+; Erick Y. Hakanson, M.D.+*

Pregnancy course and maternal and fetal outcome in 648 Hmong refugee women was compared with a control population. Hmong women were five times as likely to have a history of previous perinatal loss. A higher incidence of age ≥35 years, grand multiparity, short stature, and late prenatal care was found. Medical complications included anemia, tuberculosis, parasitic infestations, and malaria. Preeclampsia, hypertension, diabetes, urinary and vaginal infections, and gonorrhea occurred less frequently. The incidence of premature rupture of the membranes was one-third that of the control population. The prematurity rate for Hmong infants was half that of the control population, and fewer required NICU care. Contraception was accepted by 50% of the Hmong women, but less than 10% were still using contraception 12 months after delivery.

The Hmong are originally nomadic farming people who migrated to the mountains of Laos from Southern China as recently as two generations ago. During the Vietnam War large numbers were recruited by the United States Central Intelligence Agency to assist American soldiers in war efforts for which they were promised rewards. After the fall of Laos thousands fled to Thailand and many eventually resettled in the United States.

Minnesota's Hmong settlement, the largest in the U.S., is estimated to be over 10,000 people, with the greatest concentration in St. Paul. The large and rather rapid influx of this refugee population into St. Paul has presented a number of serious community problems that have been complicated by a depressed economy. As social and assistance programs become more limited, services for the refugees have become a continuing dilemma.

Delivery of medical services has presented many challenges to health care providers serving the Hmong. Included in these is the language barrier, with over 95% of the adult Hmong population unable to speak English. Moreover, a large proportion, including most of the women, are illiterate in their own language, which was only recently reduced to writing. Cultural differences include a high value on large families, making it especially difficult to communicate concepts of family planning. Medical problems, including tuberculosis, parasitic infestations, hepatitis B antigenemia, malaria, and malnutrition, have frequently been identified in this refugee population. Hopkins and Clarke in their study of five ethnic groups of Indochinese refugees found that the Hmong had the least favorable risk profile of factors associated with low birthweight.[1]

St. Paul-Ramsey Medical Center has been providing obstetric and family planning services to Hmong women and well-child care to their infants through the St. Paul Maternal and Infant Care Project and the Medical Center International Clinic. Ongoing efforts to bridge cultural and language barriers have included providing full-time trained interpreters and special introductory sessions for new patients. Instructions, slide-tape presentations, and pamphlets have been translated, and nutritional educational techniques have been adapted to their needs.

The purpose of this study is to compare pregnancy course and maternal and fetal outcome in this Hmong population with that of a control population. The racial composition of the control population is: White, 80.3%; Black, 9.7%; Hispanic, 4.5%; American Indian, 2.1%, and other races, 3.4%.

Materials and Methods

The records of all 8,776 women delivering at St. Paul-Ramsey Medical Center between January 1, 1976, through June 30, 1983, were reviewed. During this time period 648 Hmong women delivered at this institution. Obstetric and medical history, perinatal course, intrapartum events, and postpartum course were studied.

A subgroup of the 618 Hmong women delivering during the four-and-a-half year period from January 1979 through June 30, 1983, was compared with the 5,278 non-Hmong women who delivered at this institution during the same time period, using pertinent data extracted from prospectively coded obstetrical summary sheets. The difference in the frequency of 262 variables analyzed in the study and control populations of patients was tested by means of the chi-square test.

In addition, the hospital records of the 233 Hmong women who delivered prior to January 1, 1981, were reviewed for post-delivery contraceptive acceptance and use

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and subsequent pregnancy.

Charts of delivered infants were reviewed for newborn pathology and neonatal course. Prematurity was defined as less than 37 weeks of gestation.

TABLE 1

Age, parity, and marital status in Hmong and non-Hmong delivered women

Age	Hmong No.	Hmong %	Non-Hmong No.	Non-Hmong %	P
≤19 years	109	17.6	1077	20.4	N.S.
≥35 years	87	14.4	102	1.9	<.0001
Parity					
Nulliparas	96	15.5	2812	53.3	<.0001
Grand Multiparas	203	33.0	163	3.1	<.0001
Marital Status					
Married	584	94.8	3209	60.8	<.0001

TABLE 2

Prenatal care in Hmong and non-Hmong women

	Hmong No.	Hmong %	Non-Hmong No.	Non-Hmong %	P
Prenatal care begun					
First trimester	100	16.2	3313	59.2	<.0001
Third trimester	190	30.7	443	8.4	<.0001
Number prenatal visits					
0 visits	12	1.9	62	1.2	N.S.
5 visits	472	76.5	4716	89.3	<.0001

Results

Demographic data: A comparison of age, parity, and marital status between the Hmong and non-Hmong population is shown in Table 1. The ages of the study group ranged from 13 to 52 years with a mean age of 29 years. The proportion of women who were 35 years or older was seven times greater in the Hmong population.

Parity in the study group of patients ranged from 0 to 17. Fewer Hmong women were nulliparas. One-third of the Hmong women were grand multiparas, an incidence ten times that in the non-Hmong group.

Less than 5% of the Hmong women were unmarried at delivery, whereas more than 39% of the control population delivering at this institution was unmarried.

During the study period, these demographic factors shifted slightly, with the percentage of teen-age patients in the Hmongs increasing from 13% in the first two-year period to 19% in the last 30 months of the study. Concurrently, the percentage of patients over 35 years of age decreased from 18% to 10.8%. The percentage of delivered Hmong women who were married decreased from 97.5% in 1979-1980 to 88.5% in the last six months of the study.

Risk factors: All patients delivering at St. Paul-Ramsey Medical Center are evaluated by our previously described antepartum risk score system.[2] The incidence of Hmong women who were high risk (risk scores of 7 or more) was 42.6%, compared with 41.4% in the control group. A review of obstetric histories in the study and control populations revealed that almost one-fifth of the Hmong women had experienced one or more previous perinatal loss, an incidence five times greater than that in the non-Hmong women (18.1% compared with 3.7%).

None of the Hmong women smoked. In contrast, 21.5% of the non-Hmong women smoked more than one pack of cigarettes per day.

The majority of Hmong women were short of stature. More than four out of five (83.2%) were less than 152.4 cm (60 inches) in height.

The time of initiation of prenatal care and adequacy of care in terms of numbers of prenatal visits in Hmong and non-Hmong women is shown in Table 2. Whereas the majority of non-Hmong women began prenatal care in the first trimester of pregnancy, less than one-sixth of the Hmong women began care early, and almost one-third did not initiate care until the third trimester. Only 12 (1.9%) of the Hmong women had no prenatal care. Once in the health care system, Hmong women generally kept appointments, with 76.4% having five or more prenatal visits.

The timing of initiation of prenatal care also shifted: the number of Hmongs starting care in the first trimester increased from 10.8% in the first two years to 18.8% in the last 30 months of the study. Likewise, the percentage delaying onset of care until the third trimester decreased from 36% to 28%, and the percentage having no prenatal care dropped from 4% to 1%.

Medical and obstetric complications: The frequency of occurrences of medical complications during the prenatal period in the study and control groups is shown in Table 3. Additionally, routine testing of the Hmong women showed 46 women (7.4%) to have hepatitis B antigenemia. One or more intestinal parasites were identified in 14.4% of the study group, with hookworm infestation occurring most commonly. Two Hmong women had active tuberculosis. The diagnosis of malaria was confirmed by identifying parasites in the blood smear of one patient who developed high temperatures and shaking chills postpartum. In several other patients malaria was suspected but could not be confirmed.

Urinary tract infections occurred less frequently in the study population. None of the Hmong women was found to have gonorrhea on cervical cultures taken rou-

TABLE 3

Medical and obstetric complications in Hmong and non-Hmong women

	Hmong No.	%	Non-Hmong No.	%	P
Anemia	192	31.1	1189	22.5	<.005
Tuberculosis or +Mantoux	38	6.1	54	1.0	<.0001
Malaria	1	0.2	0	0	N.S.
Heart Disease	11	1.8	88	1.7	N.S.
Diabetes	1	0.2	186	3.5	<.05
Hypertension	6	1.0	319	6.0	<.05
Bacterurias/cystitis	10	1.6	474	9.0	<.05
Pyelonephritis	4	0.6	67	1.3	N.S.
Gonorrhea or syphilis	2	0.3	162	3.1	N.S.
Vaginitis	14	2.3	445	8.4	<.05
Preeclampsia	6	1.0	405	7.7	<.05
Abruptio placenta	2	0.3	81	1.5	N.S.
Placenta praevia	2	0.3	46	0.9	N.S.

tinely on the initial prenatal visit and at 36 weeks gestation. Vaginitis was diagnosed in only 0.5% of the Hmong women in the first two years of the study and increased to 3.1% in the last 30 months. The overall incidence of vaginitis was significantly lower in the study group when compared with the control population. Only one woman in the study group had mild gestational diabetes.

Essential hypertension and preeclampsia were less frequently seen in the study population. No Hmong women had preeclampsia and only one had mild transitory intrapartum hypertension during the first two years of the study period. During the last 30 months, however, six Hmong women (1.4%) had mild to moderate preeclampsia. The incidence of preeclampsia among Hmong nulliparous patients was 3.1%.

Intrapartum and delivery complications and events: Intrapartum and delivery complications and events in Hmong and non-Hmong women are compared in Table 4. Rupture of the membranes before the onset of labor occurred significantly less often in the study group, with an incidence approximately one-third that of the control population. Pitocin induction and pitocin augmentation were used less frequently in the Hmong women. Amniotomy was performed less frequently.

Labor tended to be short in many Hmong women. The length of labor was less than two hours in 12.5% and less than three hours in 22% of the patients. When possible, delivery of care during the intrapartum and postpartum periods was adapted to the preference of the Hmong women. Many preferred to deliver in the squatting position, either on the labor bed or on the floor of the labor room. Delivery was precipitous in 14%, with 9% delivering at home or en route to the hospital.

The frequency of delivery by cesarean section was significantly less than in the control population. Twenty-nine of the 648 Hmong women were delivered by cesarean section. Of these, 23 were primary cesarean deliveries, for a primary cesarean section rate of 3.5%. Cephalopelvic disproportion was the indication for cesarean section in 14 women, with fetal distress an additional complication in five of these patients; two had had previous abdominal deliveries for CPD. Seven women were delivered by cesarean section for breech or shoulder presentation, one being a twin gestation. Other indications for cesarean section were: severe fetal distress (one with cord prolapse) in three, total placenta praevia in one, repeat cesarean section in three, and failure to progress in one patient. The first Hmong woman in this institution to be delivered by cesarean section had cephalopelvic disproportion and severe fetal bradycardia. Hysterectomy was performed when extension of the uterine incision into the broad ligament resulted in hemorrhage of 3,000 cc, which could not be otherwise controlled.

A total of 12 Hmong women had breech presentations at delivery. Three were delivered by cesarean section. The incidence of shoulder dystocia was similar to that of the control group. Forceps were used in 12 women (1.9%), and 15 women (2.1%) had vacuum-assisted deliveries. Transfusions for obstetrical hemorrhage were required significantly more often in the Hmong women than in the non-Hmong control group (Table 4). The incidence of postpartum endometritis was similar in the study and control groups (1.7% compared to 1.1%). There were no maternal deaths in the study group.

Pregnancy outcome: The mean birthweight of the infants of the Hmong study women was 3,097 grams. Neonatal morbidity and perinatal mortality are shown in Table 5. Fewer Hmong infants were excessive sized (≥4,000 grams) when compared with the non-Hmong population. Congenital anomalies occurred in seven infants, an incidence similar to that in the control population. Of the seven infants with congenital anomalies, four died in the newborn period or infancy. Two had multiple major anomalies; one infant had anencephaly, and one with Turner's syndrome died after surgical correction of coarctation of the aorta.

The prematurity rate in the study group was 48.5/1000, a rate less than half the rate of 117/1000 in the control population. The incidence of problems requiring care in the newborn intensive care unit was nearly half that of the non-Hmong population. Only three Hmong infants had respiratory distress syndrome.

TABLE 4

Intrapartum and delivery complications and events in Hmong and non-Hmong women

	Hmong		Non-Hmong		
	No.	%	No.	%	P
PROM	26	4.2	622	11.8	< .05
Pitocin induction	12	1.9	855	16.2	< .0001
Pitocin augmentation	1	6.6	919	17.4	< .05
Amniotomy	152	24.6	2050	38.8	< .05
Cesarean section	27	4.4	722	13.7	< .05
Shoulder dystocia	13	2.1	84	1.6	N.S.
Transfusions	43	7.0	100	1.8	< .0001

TABLE 5

Neonatal morbidity and perinatal mortality

	Hmong		Non-Hmong		
	No.	%	No.	%	P
Low birthweight (<2500 gm)	48	7.8	575	10.9	N.S.
Excessive size (≥4000 gm)	16	2.6	411	7.8	< .05
Congenital anomalies	7	1.0	63	1.2	N.S.
NICU care	72	12.1	1275	24.2	< .05
RDS	3	0.5	50	0.9	N.S.
Perinatal mortality/1000	9	14.6	79	15.0	N.S.

There were a total of nine perinatal deaths in the study group for a perinatal mortality rate of 14.6/1000, an incidence similar to that in the control group. Of the nine perinatal deaths, seven were fetal deaths. One mother had two perinatal deaths. Her first pregnancy resulted in an infant with multiple congenital anomalies, including hypoplastic lungs, absent gallbladder and thymus, and abnormal bones. That infant died in the neonatal period. Her second pregnancy resulted in a fetus with severe hydrops and massive ascites requiring drainage of over 1,000 cc of ascitic fluid in order to accomplish delivery at 24 weeks gestation. The diagnosis of alpha thalassemia major was confirmed by DNA hybridization studies, and in retrospect, the first fetus's anomalies were caused by the autosomal recessive disease. The etiology of fetal loss was evident in only one other patient who had placenta praevia and placental abruption. Postmortum examination of the other six fetuses was refused. The second neonatal death was of an anencephalic infant. Two late neonatal or infant deaths occurred, both in infants with severe congenital cardiovascular anomalies, one of whom also carried the diagnosis of Turner's syndrome.

Contraception use: A separate analysis of the hospital records of the 233 Hmong women who delivered prior to January 1, 1981, was carried out one year after delivery. This showed that 117 women (50%) accepted contraception on their postpartum follow-up examination. An additional 13 patients (6%) had tubal sterilization or hysterectomy procedures. Thirty-seven women (16%) refused contraception. Fifty-seven women (24%) were lost to follow-up, with 13% never returning for postpartum care and 11% lost to follow-up until returning within 12 months for prenatal care of a repeat pregnancy. Nine patients (4%) moved from this area or went elsewhere for care.

Review of the first method of contraception chosen by the 130 family planning patients showed that 10% had tubal sterilizations, 36% chose oral contraceptives, 41% used foam and condoms, and 13% used injectable contraception. None chose IUDs, rhythm, or diaphragm as a first method. In addition, a number of patients stated that they used contraceptive medicines imported from Thailand. The most common are bundles of twigs costing from $20 to $200. These are boiled in water and the liquid drunk all at one time. Women using this method claim that some women have no further menstruation and do not become pregnant. Some of these twigs were submitted to the College of Pharmacy at the University of Minnesota in an attempt to identify a possible active ingredient, but analysis was not possible.

The status of contraceptive use in the 233 women 12 months post-delivery is shown in Table 6. Only 23 women (less than 10%) were actively using contraception, and 27% were again pregnant.

Discussion

The impact of lack of prenatal care, short stature, advancing maternal age, and indigent status have been shown to be factors that increase the risk of poorer pregnancy outcomes. The increased risk of low birthweight infants born to mothers who had no or poor prenatal care is well established. Stickle and Ma[3] found that low birthweight was least common in pregnancies where prenatal care began in the first trimester. Short stature is another factor that has been shown to be significantly associated with lower infant birthweight in two recent studies.[4,5] In the present study, the incidence of low birthweight infants was similar to that of the control population despite the fact that fewer women started care in the first trimester and that 83.2% were under 152.4 cm (60 inches) in height.

Short stature has also been associated with problems of labor and delivery. Molloy[6] found a greater than threefold increased rate of delivery by cesarean section in women who were shorter than 5 feet in height. Similarly, Kennedy and Greenwald[7] found higher rates of cesarean section for CPD in women less than 5 feet tall, especially if they had a small shoe size.

TABLE 6

Contraception in 233 Hmong women—status 12 months postpartum

	No.	%
Tubal sterilization/hysterectomy	17	7.3
Active contraception	23	9.9
No contraception	86	37.0
Refused	10	4.2
Lost to follow-up/care elsewhere	34	14.6
Pregnant within 12 months	63	27.0
TOTAL	233	100.0

In contrast, in the present study, Hmong women had a lower cesarean section rate despite the high incidence of short stature.

Advancing maternal age has been shown to influence the perinatal mortality rate in a recent analysis of the Collaborative Study data by Naeye.[8] Despite a sevenfold increase in the proportion of mothers over age 35 in the study population, the perinatal mortality rate was similar to that of the control population.

The very low incidence of premature rupture of the fetal membranes (PROM) in Hmong women is of great interest since this event has been noted to be more frequent in the underprivileged and indigent populations.[9] It has been postulated that because of the generally poor nutritional status of these patients, spontaneous rupture of the membranes might occur because of intrinsic weakness.[10]

The low rates of vaginal and urinary infection among the Hmong women seem to be factors that could positively affect pregnancy outcome in this group. Evidence that subclinical infection may not be merely a result but a cause of PROM is present in several recent studies.[11-14] Also, findings in several recent studies[16-18] are compatible with the hypothesis that infections are of major etiologic significance in preterm labor without PROM.

In a previous study, positive gonorrhea cultures in the intrapartum period were found to be associated with a higher incidence of PROM and prematurity (63.1% compared with 29.3%) in matched controls.[15] Additionally, in a recent study of 83 patients treated with terbutaline for premature labor at our institution, positive gonorrhea cultures were found in 4 of the 25 women with PROM. This would suggest that in some instances infection with the gonococcal organism might be a contributing factor to PROM and prematurity. Cultures for gonorrhea obtained routinely at first prenatal visit and at 36 weeks gestation were all negative in the Hmong study group of women. This may be a factor in the lower incidence of PROM and prematurity noted in this study.

The most surprising and interesting finding of this study was the generally good pregnancy outcomes for these 648 Hmong obstetric patients. Given the increased evidence of such high-risk factors as indigent status, advanced maternal age, grand multiparity, short stature, late prenatal care, poor nutrition and anemia, the incidence of low birthweight infants was not greater than that of the control population. The incidence of PROM and prematurity were also unexpectedly low. In addition to these high-risk factors, the Hmong population has also experienced difficulties related to a war, relocations, poor medical care, and lack of adequate nutrition. These conditions seem to have affected the rates of previous perinatal loss among the Hmong (18%), and one would expect these same conditions to have affected pregnancy outcomes after relocation to this country. However, the perinatal death rate was only 14.6/1000. The results thus suggest that the low rates of urinary and vaginal infections and hypertension and the absence of smoking are important factors contributing to good pregnancy outcomes in these otherwise high-risk obstetric patients.

Acknowledgments

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Clinical pathology conference: A 61-year-old man with heart failure and hemoptysis

Spencer H. Kubo, M.D., Marshall I. Hertz, M.D.*, Louis P. Dehner, M.D.*†, and Randall Moore, M.D.**

Case Presentation

The patient, a 61-year-old white male, was admitted to the University of Minnesota Hospital for heart transplantation.

The patient was in good health throughout his life but was noted to have inverted T-waves on a routine ECG in 1977. He underwent cardiac catheterization, which showed normal coronary arteries and normal left ventricular function. He remained asymptomatic until 1979 when he developed a two-month history of bronchitis with a non-productive cough and hemoptysis of approximately one-half cup per day. A chest X-ray showed a patchy lower lobe pneumonia as well as cardiomegaly and pulmonary vascular redistribution compatible with congestive heart failure. A ventriculogram showed biventricular dilatation with diffuse hypokinesis. Bronchoscopy showed only hyperemic bronchial mucosa. He was started on digoxin, furosemide, and isosorbide dinitrate.

He did well until 1984, when he had a recurrence of his hemoptysis, associated with increasing dyspnea on exertion and orthopnea. These symptoms progressed until he presented to an emergency room after a paroxysm of coughing following three days of increasing dyspnea. He was diaphoretic with acute pulmonary edema by examination. An ECG revealed sinus tachycardia at a rate of 150 with a left bundle branch block pattern. A chest X-ray showed cardiomegaly and pulmonary edema. After intensive medical therapy with nitroprusside and dobutamine, right heart catheterization was performed, showing a right ventricular pressure of 49/9 mmHg, a pulmonary artery pressure of 40/20 mmHg, and a pulmonary wedge pressure of 12 mmHg, with the cardiac index ranging between 2.8 and 3.5 L/min/m^2. An M-mode echocardiogram showed left ventricular enlargement with an internal dimension in diastole of 72 mm and in systole of 66 mm. Wall motion was severely decreased but wall thicknesses were normal. A gated blood pool scan demonstrated an ejection fraction of only 20% with global hypokinesis. Because of the inability to stabilize the patient off intravenous medications, he was transferred to the University of Minnesota for consideration of experimental inotropic therapy.

He denied any history of smoking, significant ethanol use, ischemic heart disease, toxin exposure, pulmonary disease, renal disease, diabetes, or hypertension. He denied a personal or family history of tuberculosis. His father died with heart failure in his 50s, and two brothers had myocardial infarctions at the age of 47.

Physical examination on transfer showed a middle-aged man lying almost flat without tachypnea. His blood pressure was 96/50 mmHg, heart rate was 80 regular, and respiratory rate was 14-16/min. There were bibasilar rales, scattered wheezes, and rhonchi, an S3 and S4 gallup, a displaced and sustained left ventricular impulse, and a jugular venous pressure of 15.

The routine laboratory showed a sodium of 130, a potassium of 5.5, a chloride of 97 and a bicarbonate of 27. The glucose was 87, the BUN was 43, and the creatinine was 1.3. The white blood cell count was 6,300, with a hemoglobin of 13.4 and a platelet count of 247,000. PT was 14.9, with a PTT of 41.3 and a TT of 19.1. Calcium was 8.5 and phosphorus was 3.8. A skin test for tuberculosis was negative.

The patient then underwent two hemodynamic studies prior to and two months following the initiation of treatment with MDL-19205. The addition of this investigational inotropic drug was associated with a marked increase in the patient's cardiac output from 4.52 to 6.68 liters/min. This was associated with salutary decreases in the pulmonary artery pressure from 44/18 to 26/10 mmHg and in the pulmonary capillary wedge pressure from 19 to 10 mmHg. With this treatment regimen consisting of MDL-19205, captopril, isosorbide dinitrate, digoxin, furosemide, and albuterol, the patient did very well. He was able to return to full-time employment and his only remaining symptom was intermittent hemoptysis, up to one-half cup of blood per day.

However, in the fall of 1986, the patient noted a recurrence of progressive symptoms of dyspnea on exertion, shortness of breath, and daily hemoptysis. Serial exercise testing showed a markedly limited aerobic capacity, with a total exercise duration of only 5 minutes and a maximal oxygen consumption that decreased from 16.0 to 10.1 ml/kg/min over a five-month period. There was also a deterioration in hemodynamics, with an

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increase in the pulmonary artery pressures to 55/22 mmHg, and a pulmonary capillary wedge pressure of 20 mmHg. The cardiac output had decreased to 5.02 liters/min. He was treated with another experimental inotropic agent, OPC-8212, and although the patient noted some early improvement, the effect was not sustained and he continued to deteriorate.

Because of his refractory symptoms and progressive deterioration, the patient was evaluated for cardiac transplantation. Pulmonary function testing revealed a total lung capacity (TLC) of 7.0 liters (114% predicted), a forced expiratory volume in one second (FEV_1) of 2.5 liters (81% predicted), a forced vital capacity (FVC) of 3.4 liters (97% predicted), and a pulmonary diffusing capacity (DLCO) of 28 ml/minute/mmHg (113% predicted). Arterial blood gases on room air showed a pO_2 of 80, pCO_2 of 28, and a pH of 7.52. These tests were interpreted as being essentially normal with the exception of a mildly increased arterial-to-alveolar oxygen gradient. A bronchoscopy was again performed, revealing only friable hyperemic bronchial mucosa, without a specific cause for the hemoptysis.

The patient subsequently underwent successful cardiac transplantation, which was performed without complications. At the time of the surgery, mediastinal adenopathy was noted, and biopsy specimens were obtained.

Discussion

This case highlights some of the common problems facing physicians in the evaluation of patients who have symptoms suggestive of both cardiac and lung disease. Because of the interrelationships of the cardiopulmonary system, it is often difficult to determine the pathophysiologic basis of symptoms such as dyspnea on exertion, breathlessness, cough, and hemoptysis. There are three possible processes, as outlined in Table 1. The first possibility is that the patient had primary cardiac disease with secondary lung dysfunction. The second possibility reverses the sequence, with primary lung disease and the subsequent development of cor pulmonale and cardiac failure. The third possibility is that the patient had both primary cardiac and lung disease.

Cardiac dysfunction: The case history contains many laboratory tests that confirm significant primary cardiac dysfunction as a likely explanation for his progressive dyspnea and functional limitation. The echocardiogram and nuclear scan were consistent with a dilated cardiomyopathy with a markedly increased left ventricular internal dimension, global hypokinesis, and an ejection fraction of only 20% (normal 45-70%). Formal exercise stress testing quantified the magnitude of the impairment in functional aerobic capacity, with a markedly limited exercise duration and maximal oxygen consumption, consistent with severe end-stage heart failure.[1] Finally, the results of serial right heart catheterizations show the progressive development of pulmonary hypertension, as is commonly seen in severe heart failure. Although the cardiac output was reasonably well maintained, this is most likely due to the severe left ventricular dilatation, which helps maintain forward flow in the setting of decreased systolic function.

Having established that this patient did indeed have a dilated cardiomyopathy and progressive congestive heart failure, we would then want to define the etiology of his cardiac dysfunction. Unfortunately, many diseases are associated with a dilated cardiomyopathy.[2] Occasionally, the history, physical exam, and associated laboratory tests are sufficient to diagnose a specific cause of dilated cardiomyopathy, such as the ischemic cardiomyopathy secondary to severe coronary artery disease. However, it is usually very difficult to conclusively document most of the remaining causes of cardiomyopathy, even with endomyocardial biopsy and histologic analysis.

TABLE 1

Differential diagnosis: dyspnea, shortness of breath, orthopnea, cough, hemoptysis

A. 1° cardiac disease
 2° lung disease
B. 1° lung disease
 2° lung disease
C. 1° cardiac disease and
 1° lung disease

Endomyocardial biopsy in dilated cardiomyopathy: The technique of endomyocardial biopsy has undergone significant refinement so that it can be done in most cardiac catheterization laboratories, with very little morbidity and almost insignificant mortality.[3,4] It is easy and safe to use and has been critical for the diagnosis of cardiac allograft rejection, anthracycline cardiotoxicity, amyloid, sarcoidosis, hemochromatosis, and endocardial fibrosis. Still, the ability to find specific histologic features to diagnosis many causes of idiopathic dilated cardiomyopathy has remained limited (Table 2). First, it has a disappointingly low sensitivity and is able to make a definitive diagnosis in less than 15% of patients. This is likely related to the fact that biopsy specimens are only 1 mm to 3 mm and can only be obtained from the endocardium. Moreover, many of the inflammatory processes involving the myocardium are "patchy" and not diffuse, and many involve less than 5% of the myocardium. Finally, many of the histologic findings detected during biopsy in patients with dilated cardiomyopathy are nonspecific, including myocyte hypertrophy and disarray, hyperchromatic and enlarged nuclei, and interstitial fibrosis. This has suggested that dilated cardiomyopathy may represent an end result of many diverse processes.

Several reports from laboratories experienced in the technique and analysis of biopsy specimens have reported substantially higher positive results in patients with myocarditis and idiopathic dilated cardiomyopathy.[5,6] However, these results have not been confirmed by all laboratories, and a recent study by Shanes et al.[7] highlights the high interobserver variability and the lack of standardization in the interpretation of biopsy specimens. Thus, although endomyocardial biopsy is clearly helpful in many cases, it cannot be applied uniformly to the large number of patients who present with an undiagnosed chronic dilated cardiomyopathy.

TABLE 2

Myocardial biopsy in idiopathic dilated cardiomyopathy

1. Low sensitivity
   - 1-3 mm specimens
   - endocardial sampling
   - "patchy" process involving only 5% of myocardium
2. Findings nonspecific
   - histologic changes can be seen in many diseasess, e.g., end-stage valvular disease
3. High interobserver variability

TABLE 3

Abnormalities in pulmonary function in congestive heart failure

Increased LVEDP and LAP
- Pulmonary arterial hypertension
- Increased lymph flow
- Interstitial edema
- Alveolar edema

Pathology
- Edema
- Fibrosis
- Medial hypertrophy, intimal thickening

Pulmonary dysfunction associated with congestive heart failure: Many of the symptoms of congestive heart failure are related to its secondary effects on pulmonary function. Because of the increase in left ventricular end-diastolic pressure and left atrial pressure, pulmonary arterial hypertension, increased lymph flow, interstitial edema and alveolar edema can develop. These processes can produce several histological changes in the lung, including alveolar and interstitial edema, interstitial fibrosis, medial hypertrophy, and intimal thickening (Table 3). Accordingly, it could be anticipated that most patients with heart failure will have some symptoms of lung dysfunction, making it difficult to distinguish between cardiac or pulmonary origins. Indeed, the clinical practice of separating these symptoms is often based on whether the associated evidence more strongly points to cardiac or pulmonary disease.

Most studies in the literature suggest that pulmonary function tests in patients with chronic congestive heart failure generally show a restrictive ventilatory abnormality (i.e., proportional decreases in TLC, FEV_1, and FVC), a decreased DLCO, and an increased alveolar-to-arterial oxygen gradient.[8,9] At the University of Minnesota we now have pulmonary function tests as part of the cardiac transplant evaluation in 65 patients. The median value for TLC was in the 80%-90% predicted range; for FEV_1 and FVC it was in the 70% to 80% predicted range, and for DLCO it was in the 60% to 70% range, consistent with a mild restrictive ventilatory abnormality. The patient discussed in the protocol had pulmonary function tests that were essentially normal and clearly above the norm for our patients with congestive heart failure. These findings make it unlikely that he suffered from a diffuse pulmonary parenchymal disease.

Hemoptysis: Special mention should be made of the problem of hemoptysis, which was fairly substantial in this patient and somewhat unusual for primary cardiac disease, occurring in only 1% to 7% of patients.[9] In general, hemoptysis can be categorized by its site of origin, namely alveolar or bronchial. Alveolar hemorrhage generally is accompanied by pulmonary infiltrates and abnormal pulmonary function tests and can be excluded as a cause of hemoptysis in this case. Hemoptysis from a bronchial source has many potential etiologies, some of which are pertinent to this case. A neoplasm must be considered in nearly all instances of hemoptysis. However, the fact that the patient had a seven-year history of hemoptysis without evidence of a tumor on a chest X-ray, and the fact that two bronchoscopic examinations failed to reveal a tumor, make that diagnosis very unlikely. Likewise, tuberculosis can be excluded in this case by the negative PPD and multiple negative cultures. Arteriovenous malformations may certainly cause hemoptysis but generally are large enough to be visible on chest X-rays.

Two diagnoses that should be given serious consideration as the cause of this patient's hemoptysis are bronchiectasis and broncholithasis. The term, "bronchiectasis," refers to abnormal dilatations of the bronchi which most often result from infections. In the past, tuberculosis was the most common acquired cause of bronchiectasis, but most cases now appear to occur following an episode of bronchitis or pneumonia. Because the bronchial abnormalities generally occur in the fifth- to eighth-order bronchi, bronchoscopic examination rarely confirms the presence of bronchiectasis. The history of a two-month-long episode of bronchitis preceding the onset of hemoptysis in this case suggests the diagnosis of bronchiectasis. Broncholithiasis is a condition in which a calcified hilar lymph node erodes into an adjacent bronchus. When this occurs, symptoms may include cough, hemoptysis, and infection. Although any calcified hilar node may lead to this complication, histoplasmosis is the most common etiology in Minnesota. Most patients have abnormal findings such as bronchial narrowing on bronchoscopy, but the calcified node is not always visible.[11] Although the diagnosis of broncholithiasis cannot be excluded, the absence of endobronchial obstruction at two bronchoscopic examinations over a seven-year period would be unusual in this diagnosis.

Finally, what of congestive heart failure as the etiology of this patient's hemoptysis? Although it is most frequently associated with mitral stenosis, all causes of elevated left atrial pressure may result in hemoptysis.[12] In the course of evaluating over 200 patients in the University of Minnesota Heart Transplant Program, we have indentified 4 other patients in whom hemoptysis occurred without a specific alveolar or bronchial cause. At bronchoscopy, these patients have had very prominent, engorged mucosal blood vessels, as did the patient under discussion. Thus, the most likely cause for the gross hemoptysis occurring over a seven-year period in this patient would appear to be bronchiectasis in association with congestive heart failure or congestive heart failure alone.

Mediastinal adenopathy: At the time of cardiac transplantation the patient was found to have mediastinal adenopathy. The possible etiologies for this finding would include neoplasms, infection, and non-infectious inflammatory conditions. Although the patient may have had an occult carcinoma or lymphoma causing mediastinal adenopathy, these lesions would not be expected to remain clinically and radiographically occult for a long period of time. Infectious causes of clinically silent mediastinal lymphadenopathy are generally granulomatous infections such as tuberculosis and histoplasmosis. As detailed above, tuberculosis is an unlikely diagnosis in this patient. On the other hand, histoplasmosis would be a very plausible diagnosis that could explain both the patient's hemoptysis and the mediastinal nodes. Although no mention of serologic tests for histoplasmosis is made in the protocol, such tests may have proved useful in supporting such a diagnosis. Pathologically, lymph nodes from patients with histoplasmosis show caseating or non-caseating granulomas that frequently do not show organisms when stained with silver stains; therefore, the diagnosis is often not made specifically but only inferred on clinical and serologic grounds. Sarcoidosis is the most common non-infectious inflammatory condition causing mediastinal adenopathy. This patient did not have other typical findings of sarcoidosis such as bilateral hilar lymphadenopathy and reduced pulmonary diffusing capacity. Although this certainly does not exclude the diagnosis, it makes it difficult to distinguish from stain-negative histoplasmosis in the absence of serologic tests for the latter. Sarcoidosis may involve the airways by causing submucosal granulomas, resulting in symptoms of cough and airflow obstruction. However, gross hemoptysis would be an exceedingly unusual finding in sarcoidosis. Therefore, if this patient has sarcoidosis, an alternative explanation for the hemoptysis would be required in this case.

In summary, the patient is a 61-year-old white male with a dilated cardiomyopathy and severe reductions in left ventricular systolic performance. We are unable to diagnose a specific causes for his "idiopathic dilated cardiomyopathy" and would await the pathologic examination of the heart following cardiac transplantation for more precise diagnoses. He experienced progressive congestive heart failure that was refractory to aggressive standard and experimental medical therapy, and was considered an ideal candidate for cardiac transplantation. He had many symptoms of pulmonary dysfunction that were likely explained by the presence of severe biventricular failure. However, the prominent history of hemoptysis and the finding of the mediastinal adenopathy raise the possibility of concomitant pulmonary diseases including histoplasmosis, bronchiectasis, and sarcoidosis. A granulomatous mediastinal disease such as histoplasmosis could explain both the adenopathy and the hemoptysis. However, based on the clinical course of the patient and the predominant cardiac symptoms, it is possible that these other diagnostic possibilities represent concomitant diseases.

Pathologic Findings

The pathologic examination of the heart and accompanying mediastinal lymph nodes was revealing and correlated with some of the clinical findings in this patient. Although the histologic abnormalities were not subtle, the earlier comments are appropriate about the difficulties that the pathologist has in making a specific anatomic diagnosis in end-stage myocardial disease either at autopsy or in the surgical pathology laboratory with a specimen from a heart transplantation procedure. A less-than-edifying interpretation of nonspecific cardiomyopathy in an enlarged heart provides only limited information, but this is often the situation even after ultrastructural studies. It is certainly not from a paucity of tissue sections that our pathologic conclusions are so tentative. For instance, the heart from the patient in this discussion weighed 509 gm. Both ventricles were dilated and the free wall on the right and left sides measured 0.3 and 1.7 cm. in thickness, respectively. Valvular vegetations were not identified and the myocardium had a homogeneous reddish-brown color and a firm consistency.

In contrast to the abnormal but nonspecific gross appearance of the heart, the microscopic sections were striking for the presence of numerous interstitial inflammatory infiltrates. These collections of inflammatory cells were distributed throughout the deep myocardium, but a few aggregates were found in the subendocardium. The interventricular septum and left ventricle were the principally affected sites. Neither the cardiac valves nor the coronary arteries were involved by the inflammation, although moderate to severe atherosclerosis was present in the three arteries. The inflammatory reaction was granulomatous in type; epithelioid histiocytes and small lymphocytes were intermixed in varying proportions (Figure 1). Multinucleated giant cells were identified in most, but not all foci of inflammation (Figure 2). There was no evidence of caseous necrosis. Similar noncaseous, epithelioid granulomas were present in the enlarged hilar and mediastinal lymph nodes (Figure 3). Acid fast and methenamine silver strains for mycobacteria and fungi were negative for microorganisms in the heart and lymph nodes.

There were two basic considerations in the pathologic differential diagnosis of granulomatous inflammation, since there was no

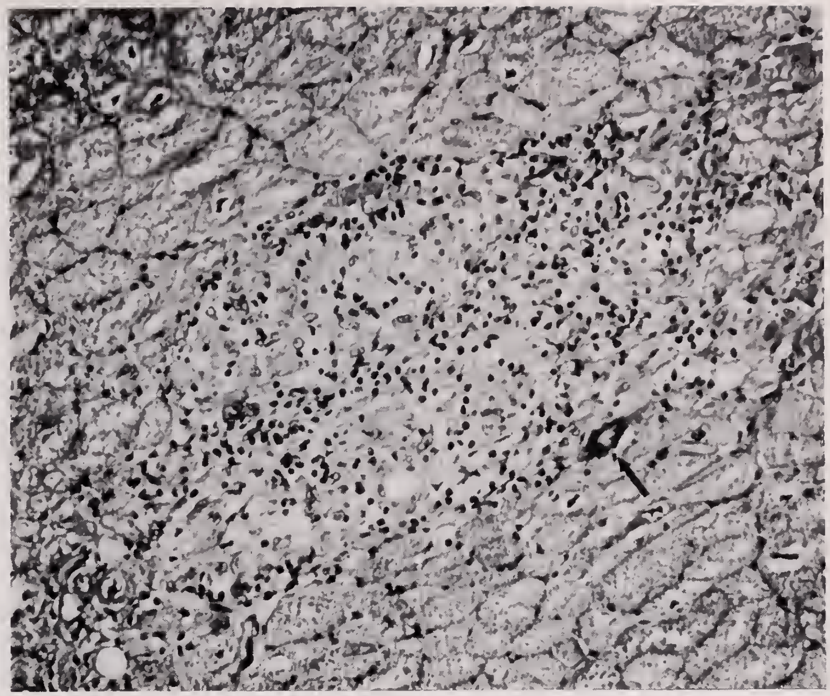

FIGURE 1 - A circumscribed focus of inflammation in the myocardium with the characteristic features of a granuloma, showing epithelioid histiocytes and a single giant cell (arrow). X160

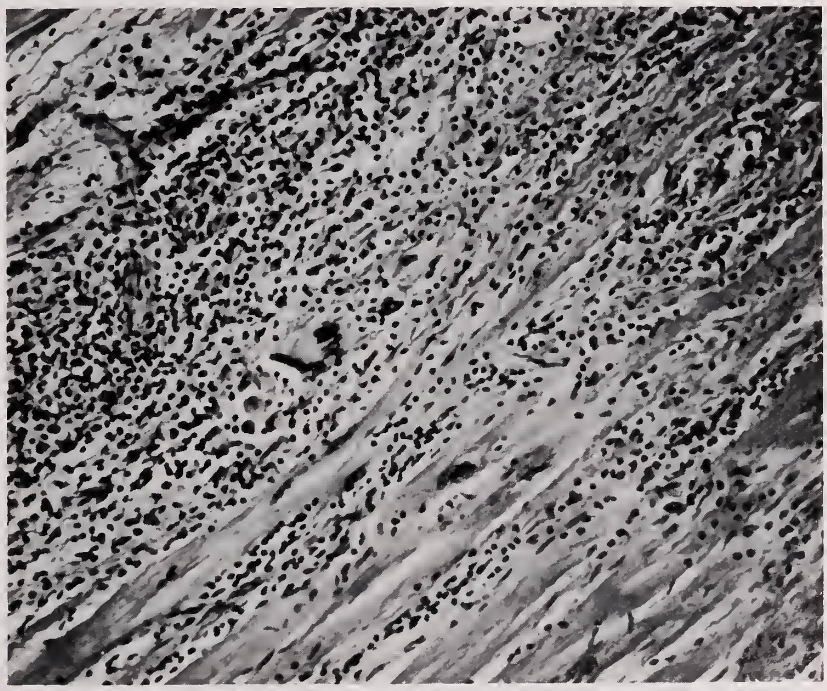

FIGURE 2 - Although a multinucleated cell is present in the area of inflammation, the granulomatous character of the lesion is not immediately apparent. The inflammatory cells are principally small lymphocytes; these cells have infiltrated the surrounding myocardium. X160

evidence of an infectious etiology nor an underlying collagen vascular disease or hypersensitivity disorder: myocardial sarcoidosis and idiopathic giant cell myocarditis.[13] The distinction between these two conditions, if one exists at all, is not entirely clear in the literature, although Davies et al. emphasized the presence of serpiginous areas of myocardial necrosis in idiopathic giant cell myocarditis, which was not found in our case.[14] Because sarcoidosis is generally regarded as a systemic disorder, it has been argued that the exclusive cardiac involvement in idiopathic giant cell myocarditis supports its existence as a distinctive entity. Other than the regional granulomatous lymphadenitis in our patient, there were no other overt manifestations of sarcoidosis. Hilar and mediastinal lymphadenopathy was not commented upon in various pretransplantation chest X-rays, although these lymph nodes were noticeably enlarged at the time of surgery. Without another plausible explanation for the granulomatous inflammation in the heart and lymph nodes of our patient, the presumptive diagnosis was sarcoidosis.

It is estimated that 5% of individuals with sarcoidosis have cardiac dysfunction attributable to inflammation of the heart.[15,16] However, the frequency of myocardial granulomas at autopsy in individuals with sarcoidosis ranges from 20% to 27%.[17,18] Cardiac-related symptoms are often the first and only manifestations of sarcoidosis in patients with sarcoid heart disease. That is not to imply that granulomatous inflammation is not present in other organs, since the lungs and lymph nodes are affected in 75% to 100% of cases at autopsy.[17,19]

Pathologically, the heart is typically enlarged in those patients with symptomatic cardiac sarcoidosis, especially in cases with congestive heart failure. The heart may weigh in excess of 500 gm but usually less than 700 gm.[17,19] When granulomas are an incidental finding at autopsy, the weight of the heart may be within normal limits for sex, weight, and size of the individual. Other than thickening of the interventricular septum and the left ventricular myocardium, the heart has minimal gross clues to the underlying diagnosis. Ventricular aneurysm, left atrial thrombosis, valvular involvement, and pericardial epicardial granulomas are uncommon features.[20,21] The free wall of the left ventricle and the interventricular septum are the most frequent sites of granulomatous inflammation, [17] as seen in the present case. Although this patient showed widespread active granulomas, the number of granulomas ranges from very few to many per case.[18] Multinucleated cells were not found in every focus of granulomatous inflammation in our case, but histiocytes or epithelioid cells and lymphocytes were noted. This is a possible source of problem in the pathologic interpretation since the granulomatous nature of the process may not be fully appreciated in the biopsy. Another difficulty is the concentration of the granulomas on the left side of the heart. However, Sekiguchi et al. sampled from the right side in a postmortem simulation of an endomyocardial biopsy and successfully identified granulomas in 63% of cases.[22] Likewise, Ratner et al.[23] found that the endomyocardial biopsy was useful in the diagnosis of cardiac sarcoidosis, but they concluded that the biopsy was not helpful in cases of occult disease. In absence of giant cells in a small biopsy, nonspecific lymphohistiocytic myocarditis is a likely interpretation whose clinical utility may be limited.[24]

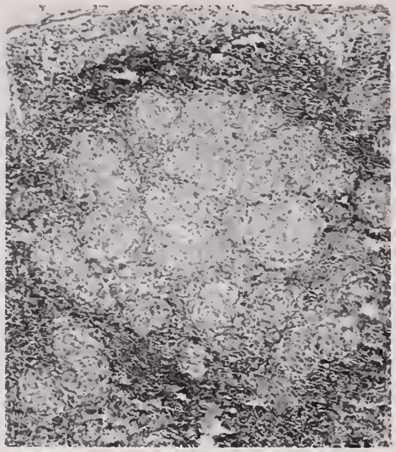
FIGURE 3 - Numerous noncaseating granulomas partially replacing the normal architecture of the mediastinal lymph node. X64

Concluding Remarks

The patient underwent successful cardiac transplant and has now returned to work without any cardiac limitation. Of note, the hemoptysis has abated, likely secondary to the marked improvement in hemodynamics following transplantation. The relationship of sarcoidosis to the transplanted heart remains uncertain. Although the patient might be considered at risk for the redevelopment of sarcoid heart disease, the immunosuppressant medications necessary for rejection may influence this possibility.

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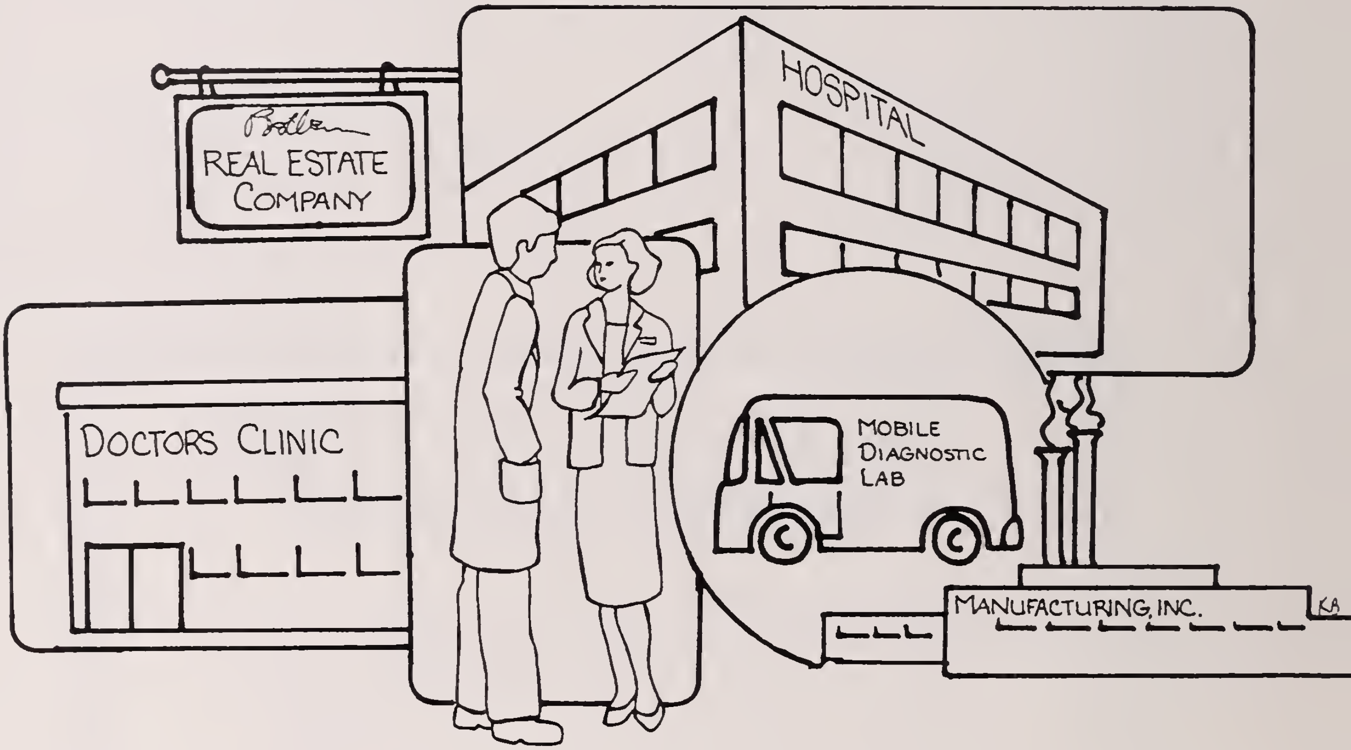

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Two-step Mantoux testing in a Minnesota nursing home

James J. Pattee, M.D.[*]

A medical care evaluation study monitored all admissions to a 550-bed nursing home in Minnesota to determine the incidence of a positive tuberculin skin reaction among the new admissions. During a four-month period, four new residents had a history of a positive Mantoux, seven had a positive Mantoux on the initial PPD test, and four more responded positively to the second Mantoux. The study supports the need for a two-step Mantoux test for all elderly patients.

The National Consensus Conference on Tuberculosis held under the leadership of Michael D. Iseman, M.D., and John A. Sbarbaro, M.D., issued statements about the control and treatment of tuberculosis.[1] Consensus on public health issues included these positions:

- Tuberculosis surveillance efforts directed toward persons at high risk of infection should be continued. These high-risk groups include: new nursing home residents and nursing home and hospital staff members.
- The Mantoux test is the only acceptable method for detecting tuberculosis infection.[2]

Reporting on tuberculin-negative residents of nursing homes in Arkansas, Stead states, "The annual rate of conversion from negative to positive was about 5% in homes in which an infectious case had been recognized within the previous three years and 3.5% in homes with no recognized case."[3]

Geriatricians have been concerned that with the senescence of their immune systems, older individuals with inactive tuberculosis will become active carriers. Epidemiologists are concerned that individuals who reside in nursing homes in close proximity to other residents are particularly susceptible when exposed to an active tuberculosis. Because of these factors, it is extremely important that nursing homes monitor their residents and staff for tuberculosis infection.

Because the reactivity to PPD wanes with passing years, some individuals who are tuberculin-sensitive will not react to a single PPD test. However, a second PPD test given at least one week after the initial test will be positive.

This phenomenon is called the booster effect, and it is the basis for the Centers for Disease Control recommendation for two-step PPD skin testing of all new nursing home admissions.

Stead et al.[3] reported on tuberculin skin testing of 25,637 elderly residents in nursing homes in Arkansas; 757 of these residents had a documented conversion from a negative to a positive skin test and were treated. Of this group, only one (.16%) developed clinical tuberculosis. These findings support the value of identifying nursing home residents whose PPD test has converted from negative to positive.

North Ridge Care Center, a 550-bed nursing home in Minnesota, has had one active case of tuberculosis in the last 15 years. This case was diagnosed on a symptomatic patient by chest X-ray. Another patient of concern had a negative single-step tuberculin test upon entering the nursing home. This resident developed a symptomatic respiratory infection. Eight months following admission, a second Mantoux was placed and was positive. Did this represent a recent conversion or was the positive tuberculin reaction the result of the booster effect of the initial Mantoux? Because of the concern of the other residents, as well as the staff, the resident was placed on treatment before returning to the nursing home.

Methods

North Ridge Care Center developed a medical care evaluation study to answer two questions: 1) What is the incidence of tuberculin-positive residents among the new admissions to North Ridge Care Center? and 2) What is the incidence of the booster phenomenon when using a two-step skin test for tuberculosis screening?

All new admissions to North Ridge were tested with .1 cc of PPD at a strength of 5 tuberculin units per dose. All the tests were read within 48 hours. Reactions of 10 mm or greater were considered positive. If the original test was less than 10 mm, .1 cc of PPD at a strength of 5 tuberculin unit doses was repeated at two weeks.

Results

In the four-month period between August 15, 1985, and December 15, 1985, 90 new residents were admitted to North Ridge Care Center. Four of the new admits gave a history of a positive Mantoux. Therefore, 86 Mantoux tests were placed. Seven were positive, with a

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TABLE 1

Testing of new admissions to North Ridge Care Center during four-month study period

Total admissions	90
Tuberculin sensitive	
by history	4
by first test	7
Discharged home	3
Discharged hospital	2
Died	1
Received second test	73

reaction of 10 mm or greater after the first test. The tests were repeated on 73 non-reactive individuals. Seventeen were not tested the second time for reasons shown in Table 1. Of the repeated tests, four were positive. Therefore, of the 11 new residents identified as being tuberculin positive, 4 (36%) were discovered as a result of the two-step Mantoux. Following the study, the North Ridge Utilization Review Committee recommended that the two-step Mantoux be carried out on all new admissions.

Discussion

The Centers for Disease Control states that in 1982 the incidence of tuberculosis in persons over age 65 was 29.7%. While the incidence of tuberculosis is low in Minnesota, 16.5% of those admitted to North Ridge Care Center were positive reactors by history or by two-step tuberculin skin test (Table 2). This fact should support the wisdom of closely monitoring new admissions to nursing homes. This small study also supports the need for a two-step Mantoux test for all elderly patients, since 36% of the positive reactors to the tuberculin test were identified by the second step.

TABLE 2

Incidence of tuberculosis in new admissions to North Ridge Care Center during study period

	Number	Percent
New admissions	90	100.0%
Tuberculin-positive		
by history	4	4.4%
by first Mantoux	7	7.7%
by second Mantoux	4	4.4%
Tuberculin-negative	69	76.7%
Lost to follow-up	6	8.0%

Acknowledgment

I wish to express my appreciation for the help of the North Ridge Medical Center nursing staff who assisted with the Mantoux testing and recordkeeping.

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Brief Summary. Consult the package literature for prescribing information. Indications and Usage: Keflet® Tablets (cephalexin, Dista) are indicated for the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Respiratory tract infections caused by *Streptococcus pneumoniae* and group A β-hemolytic streptococci (Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. Keflet is generally effective in the eradication of streptococci from the nasopharynx; however, substantial data establishing the efficacy of Keflet in the subsequent prevention of rheumatic fever are not available at present.)

Otitis media due to *S pneumoniae, Haemophilus influenzae*, staphylococci, streptococci, and *Neisseria catarrhalis*

Skin and skin structure infections caused by staphylococci and/or streptococci

Bone infections caused by staphylococci and/or *Proteus mirabilis*

Genitourinary tract infections, including acute prostatitis, caused by *Escherichia coli, P mirabilis*, and *Klebsiella* sp.

Note— Culture and susceptibility tests should be initiated prior to and during therapy. Renal function studies should be performed when indicated.

Contraindication: Keflet is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: BEFORE CEPHALEXIN THERAPY IS INSTITUTED, CAREFUL INQUIRY SHOULD BE MADE CONCERNING PREVIOUS HYPERSENSITIVITY REACTIONS TO CEPHALOSPORINS AND PENICILLIN. CEPHALOSPORIN C DERIVATIVES SHOULD BE GIVEN CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS.

SERIOUS ACUTE HYPERSENSITIVITY REACTIONS MAY REQUIRE EPINEPHRINE AND OTHER EMERGENCY MEASURES

There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and the cephalosporins. Patients have been reported to have had severe reactions (including anaphylaxis) to both drugs.

Any patient who has demonstrated some form of allergy, particularly to drugs, should receive antibiotics cautiously. No exception should be made with regard to Keflet.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C difficile*. Other causes of colitis should be ruled out.

Usage in Pregnancy— Safety of this product for use during pregnancy has not been established.

Precautions: *General*— Patients should be followed carefully so that any side effects or unusual manifestations of drug idiosyncrasy may be detected. If an allergic reaction to Keflet occurs, the drug should be discontinued and the patient treated with the usual agents (eg, epinephrine or other pressor amines, antihistamines, or corticosteroids).

Prolonged use of Keflet may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Keflet should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Indicated surgical procedures should be performed in conjunction with antibiotic therapy

As a result of administration of Keflet, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B— The daily oral administration of cephalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, fetal viability, fetal weight, or litter size. Note that the safety of cephalexin during pregnancy in humans has not been established.

Cephalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals. Nevertheless, because the studies in humans cannot rule out the possibility of harm, Keflet should be used during pregnancy only if clearly needed.

Nursing Mothers— The excretion of cephalexin in the milk increased up to 4 hours after a 500-mg dose, the drug reached a maximum level of 4 μg/mL, then decreased gradually, and had disappeared 8 hours after administration. Caution should be exercised when Keflet is administered to a nursing woman.

Adverse Reactions: *Gastrointestinal*— Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely. The most frequent side effect has been diarrhea. It was very rarely severe enough to warrant cessation of therapy. Dyspepsia and abdominal pain have also occurred. As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.

Hypersensitivity— Allergic reactions in the form of rash, urticaria, angioedema, and, rarely, erythema multiforme, Stevens-Johnson Syndrome, or toxic epidermal necrolysis have been observed. These reactions usually subsided upon discontinuation of the drug. Anaphylaxis has also been reported.

Other reactions have included genital and anal pruritus, genital moniliasis, vaginitis and vaginal discharge, dizziness, fatigue, and headache. Reversible interstitial nephritis has been reported rarely. Eosinophilia, neutropenia, thrombocytopenia, and slight elevations in SGOT and SGPT have been reported

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Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

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Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS—Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

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*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

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special report

Action Plan to Encourage Union Support for a Smoke-Free Hospital

Most hospitals with union-represented employees will face special challenges when implementing smoke-free policies. Prior to January 1, 1990, when a new state law will take effect, a unionized hospital is legally required to offer to discuss its no-smoking policy with its union. The reason: introducing a smoke-free policy in the workplace involves a fundamental change in working conditions, which constitutes a mandatory subject of bargaining. This means that hospital management and union representatives must sit down and discuss both the decision to implement the smoke-free policy and the effects of that change on the union-represented employees. Given the legal obligation, the following is intended to help unionized hospitals develop their smoke-free programs.

Recognize the Union's Dilemma

Unions have a legal obligation to protect the interests of all the employees they represent. Thus, no-smoking rules present legal concerns for unions, since they must fairly represent both smokers and nonsmokers. Unions also may have to face the practical problem of contending with opposing political pressures (i.e., smokers vs. nonsmokers) when the issue of a smoke-free environment comes up.

Educate Employees and Union Leadership

Both management and unions share the common goal of providing and preserving a safe and healthy work environment. Consequently, there is no reason to assume that a union will automatically reject the smoke-free hospital concept. Support for a smoke-free policy can be developed in advance by educating employees and union leaders about the advantages of such a policy to employees. To illustrate, the hospital can:

- Distribute informational materials to union leaders on the direct and secondhand health hazards of smoke.
- Focus discussions with union leaders on the dangers of tobacco smoke to all employees instead of the concerns about the health of smokers.
- Advise union leaders about the skyrocketing costs associated with smoking and how this affects employees. In Minnesota, smoking is responsible for nearly 10% of statewide disabilities. This trend results in an increasing share of employees' total compensation going to pay for health care benefits, often at the expense of wage increases.

Develop a Sound Policy

Consider these guidelines in developing a smoke-free policy for the hospital:

1) Employees should be given time to become acquainted with policy before it is implemented.

2) The policy itself should be stated simply and clearly. Any exceptions should be listed explicitly.

3) Consequences of disobeying the policy should be made clear.

4) The policy should be applied in a consistent and non-discriminatory manner.

Following this approach should make it easier to convince the union to accept the policy.

Examine the Union Contract

Examine the hospital's union contract carefully; look particularly for the management rights clause, the grievance/arbitration provision, the applicable work rules, and limits on management's right to change work rules. Also, think about how similar changes in the health-care work environment affecting unionized employees (e.g., new procedures to protect against highly contagious diseases) have been handled in the past. Tailor management's approach to the hospital's situation, its management philosophy, and its relationship with the union leaders. If questions arise about the hospital's union contract or its labor-management practices, get proper advice from the hospital's attorney or labor specialist.

Inform the Union

After the hospital board reaches an initial decision to become smoke-free, the union representing the hospital's employees should be told promptly that the hospital is considering a smoke-free policy. This notification should be written and should explain in detail the rationale for wanting to have a no-smoking policy: the obligation to protect the health and safety of all employees, patients, and visitors. The notification should also mention the impending state law that will go into effect at the beginning of 1990. In addition, the notification should state that hospital management wants to bargain with the union about the policy and will implement the policy at a stated future date if the union elects not to negotiate about the new policy.

Control the Timing of Negotiations

If the hospital's union contract is about to expire, management may want to raise the no-smoking policy as an issue during the upcoming round of negotiations. But management should not wait if the hospital's contract has several months (or years) to run. The hospital has a right to request negotiations during the term of its labor contracts over matters such as an anti-smoking policy.

Plan for Productive Collective Bargaining

If the union declines to bargain about the no-smoking policy, the hospital can go ahead and implement it on the date stated in the notice given to the union. If the union wants to bargain about the smoke-free policy, management must bargain to impasse before making a final decision about implementing the policy. Impasse simply means that no agreement can be reached, although both sides have discussed their positions at length and each side has made all the concessions it is going to. When an impasse is reached during the term of a union contract, most hospitals will be in a position to implement the no-smoking policy. However, before taking that step, the hospital should review the pertinent facts with its lawyer or labor consultant.

During negotiations, start from the premise that the hospital has a responsibility to provide a safe, healthy environment for patients, visitors, and employees. Stress that a smoke-free environment is of greater benefit to employees than the hospital and bargain from that position. In this process of collective bargaining, use creative incentives to gain the support of the majority of unionized employees. For example, the hospital might offer a discounted insurance rate to nonsmokers, a wellness program to employees, free or reduced-rate seminars on how to stop smoking, etc.

If the hospital's union opposes the smoke-free policy, it may suggest instituting a designated smoking area. Designated smoking areas are not an acceptable, long-term solution to the problem of removing tobacco smoke from a health-care facility. Designated areas usually are not viable because of space limitations and the high cost of adapting the ventilation system. If smokers and nonsmokers are served by the same ventilation system, the recirculating air may include a background concentration of smoke that contains several times the acceptable risk level of toxic chemicals. Thus, the only practical way to reduce the risk of passive smoke to an acceptable level is to separate the smokers and nonsmokers into areas with different ventilation systems, which undoubtedly will be very costly. Also, the creation of smoking areas still gives the appearance that a health-care institution is supporting an activity that is regarded as a health hazard. Clearly, a total ban on smoking is the better way to go.

Anticipate Union Challenges

A union can challenge the no-smoking policy in two ways. First, it can file a grievance based on its interpretation of its rights under the union contract. Second, it can file an unfair labor practice under the National Labor Relations Act, claiming that the hospital failed to bargain in good faith to impasse about the policy. By carefully planning its strategy, promptly notifying the union, bargaining to impasse over the issue, and following the advice of its legal advisors, the hospital can defeat an unfair labor practice in all likelihood. These same steps should also help the hospital win an arbitration over the issue of an anti-smoking policy, although the results cannot be predicted in total confidence without studying the particular union contract involved and knowing the history of labor-management dealings under the contract.

New Law to Prohibit Smoking in Health Care Facilities

A new state law will require hospitals to prohibit smoking effective January 1, 1990. Because this change is mandated by statute and concerns a fundamental health issue, the subject of a smoke-free policy will not be considered a mandatory subject of bargaining on and after that date. Hospitals should use this approaching deadline proactively by planning for the implementation of a smoke-free policy rather than waiting until the last minute and taking reactive measures.

Hmong Pregnancy references from p. 637

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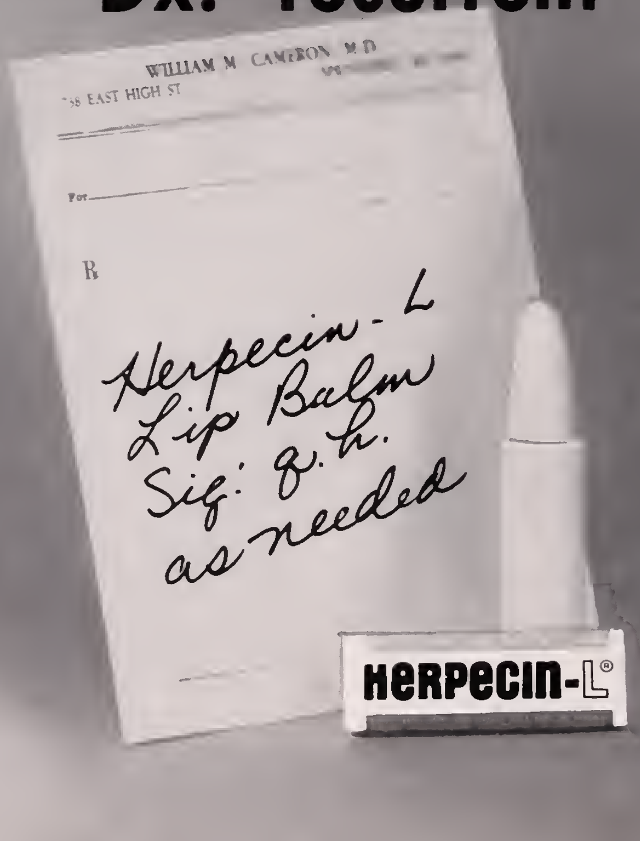

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medicalegal brief

Federal study profiles malpractice experience*

Paul S. Sanders, M.D., Chairperson,
MMIE Risk Management Committee

In April 1987, the United States General Accounting Office (GAO) released its report of the first comprehensive national study of medical malpractice claims completed since 1978. The report, *Medical Malpractice: Characteristics of Claims Closed in 1984,* was based on analysis of a sample of 1,706 claims closed by 25 insurance companies. Information from the sample was extrapolated to provide estimates of all medical malpractice claims closed in 1984.

How Many? How Much?

An estimated 73,472 medical malpractice claims were closed in 1984; 43% were closed with an indemnity payment.

Indemnity payments for awards and settlements totaled approximately $2.6 billion, with a median payment of $18,000 and an average of $80,741.

In addition to indemnity payments, insurers paid approximately $807 million in outside costs to investigate and defend all of the claims closed in 1984. The median and average costs were $2,390 and $10,985, respectively. Almost 83% of the total costs were for defense counsel.

What were the Principal Allegations?

The GAO divided the allegations of negligence made in claims into 12 general categories and estimated the frequency and average indemnity of each type of allegation (Table 1). The most frequent categories were further divided into more specific allegations for more detailed analysis (Tables 2, 3, 4).

As shown in Tables 1-4, almost half of the claims closed in 1984 involved allegations of surgical or diagnostic errors. Surgical errors were cited in about 25% of closed claims; of these, almost 75% involved improper performance of a surgical procedure. Diagnostic errors, cited in about 24% of the claims, most frequently involved failure to diagnose (about 37%).

Claims alleging obstetrical errors, while accounting for only 7.5% of the total number of claims, were responsible for 27% of the total indemnity paid and, at more than $216,000, the highest average indemnity payment. Approximately 24% of obstetric-related claims alleged failure to identify fetal distress.

Where Did Injuries Occur?

About 80% of claims closed in 1984 involved injuries that occurred in a hospital. The most frequent allegation arising out of a hospital setting was surgery-related error.

Thirteen percent of claims centered on injuries that occurred in a physician's office; treatment-related error was most commonly cited in these cases.

Against Whom were Claims Filed?

A wide variety of health care providers were named in malpractice claims (Figure); physicians accounted for about 71% of all claims. Forty-two percent of the physicians named in claims had previous claims made against them. (However, this information was unknown for 28% of the physicians.) Fifty-one percent of the physicians were board certified.

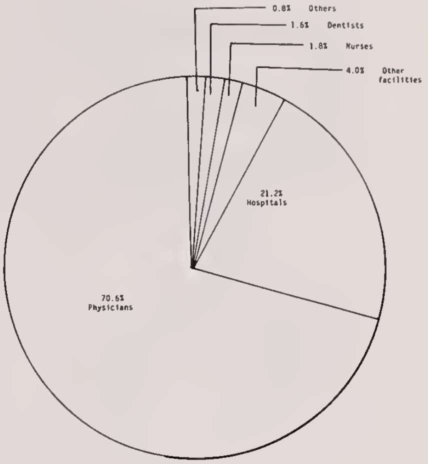

FIGURE - Distribution of providers against whom claims were filed.

As shown in Table 5, half of the physicians named in claims practiced in one of six specialties. Of all of the physicians in the United States, about 40% practiced in these six areas.

How Much Indemnity was Paid by Specialty?

By analyzing claims in which only one provider — a physician — was named, the GAO was able to estimate the average and median indemnity payment on claims by specialty (Table 6).

Copies of *Medical Malpractice: Characteristics of Claims Closed in 1984* can be obtained by contacting the United States General Accounting Office, Washington, D.C. 20548.

Tables 1-6 next page

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TABLE 1

Number of claims and average indemnity by principal allegations of negligence

Type of Error	Number of Claims	Percent of Claims	Average Indemnity
Surgery	18,697	25.4	$ 76,255
Diagnosis	17,372	23.6	95,747
Treatment	14,635	19.9	42,316
Obstetrics	5,517	7.5	216,464
Medication(a)	3,019	4.1	51,263
Medication administration(b)	2,735	3.7	33,379
Anesthesia	2,720	3.7	84,451
Physiology/behavior monitoring, biomedical equipment, IV, and blood products	3,284	4.5	27,122
Other	5,491	7.5	–

(a) Wrong medication or dosage ordered

(b) Wrong medication or dosage administered, improper method of administration, etc.

TABLE 2

Number of claims for surgical errors by specific allegations

Allegations	Surgical Error Claims Number	Percent
All surgical error claims	18,697	100.0
Improper performance	13,966	74.7
Other surgery-related error	1,690	9.0
Retained foreign bodies	1,051	5.6
Unnecessary surgery	811	4.3
Failure to obtain consent for surgery	780	4.2
Improper positioning	(a)	(a)
Wrong body part	(a)	(a)

(a) Limited occurrence in sample precludes calculation of reliable estimate.

TABLE 3

Number of claims for diagnostic errors by specific allegations

Allegations	Diagnostic Error Claims Number	Percent
All diagnostic error claims	17,372	100.0
Failure to diagnose (no diagnosis made)	6,495	37.4
Misdiagnosis (original diagnosis incorrect)	5,794	33.4
Delay in diagnosis	3,891	22.4
Improper performance of diagnostic test	871	5.0
Failure to obtain consent for diagnostic procedure	186	1.1
Unnecessary diagnostic test	(a)	(a)
Other diagnosis-related error	(a)	(a)

(a) Limited occurrence in sample precludes calculation of reliable estimate.

TABLE 4

Number of claims for treatment errors by specific allegations

Allegations	Treatment Error Claims Number	Percent
All treatment error claims	14,635	100.0
Improper performance	6,602	45.1
Improper choice of treatment	3,179	21.7
Failure to render treatment	2,073	14.2
Other treatment-related error	1,192	8.1
Delay in treatment	1,047	7.2
Failure to obtain consent for treatment	(a)	(a)
Premature end of treatment	(a)	(a)
Failure to instruct	(a)	(a)

(a) Limited occurrence in sample precludes calculation of reliable estimate.

TABLE 5

Number of physicians involved in claims

	Physicians			
	All(a)		Involved in Claims(b)	
Specialty	Number	Percent	Number	Percent
Obstetrics/gynecology	23,234	5.2	8,927	12.4
General surgery	31,308	6.4	8,733	12.1
Orthopedic surgery	14,572	3.0	6,064	8.4
Internal medicine	60,118	12.4	5,397	7.5
General practice	29,399	6.1	4,555	6.3
Family practice	31,195	6.4	4,505	6.3
Radiology(c)	19,893	4.1	3,973	5.5
Emergency medicine	7,811	1.6	3,325	4.6
Anesthesiology	16,845	3.5	3,073	4.3
Plastic surgery	3,193	0.6	2,307	3.2
Urology	7,889	1.6	2,156	3.0
Pediatrics	28,027	5.8	2,147	3.0
Ophthalmology	13,281	2.7	2,027	2.8
Neurosurgery	3,498	0.7	1,850	2.6
Otolaryngology	(d)	(d)	1,304	1.8
Psychiatry	27,303	5.6	1,298	1.8
Pathology	12,502	2.6	426	0.6
Other	153,055	31.5	9,862	13.7
TOTAL	485,123	100.0	71,930	100.0

(a) Data are as of December 31, 1981, the year most patient injuries occurred for the malpractice claims closed in 1984 and are from *Physician Characteristics and Distribution in the U.S.*, 1982 ed, Department of Data Release Services, Division of Survey and Data Resources American Medical Association, 1983, pp 37-38.

(b) Detail does not add to total due to rounding.

(c) Includes radiology, diagnostic radiology, and therapeutic radiology.

(d) Data not provided for this specialty.

TABLE 6

Number of paid claims involving only one physician provider and indemnity payments by physician specialty

	Claims with One Physician(a)		Indemnity Payments	
Physician specialty	Total	Paid	Median	Average
All claims	33,068	14,749	$25,000	$85,179
Obstetrics/gynecology	5,165	2,711	75,000	177,509
General surgery	3,952	1,173	49,000	120,889
Orthopedic surgery	3,283	1,493	25,000	80,059
Internal medicine	1,299	629	10,000	42,757
General practice	2,076	1,071	45,000	50,264
Family practice	2,400	717	15,000	40,339
Radiology(b)	520	231	19,500	53,101
Emergency medicine	826	364	7,000	22,640
Anesthesiology	1,851	884	3,000	42,680
Plastic surgery	1,998	618	22,500	70,172
Urology	912	771	625	14,896
Pediatrics	1,640	492	195,000	198,644
Ophthalmology	1,260	578	10,000	55,593
Neurosurgery	828	247	10,000	65,226
Otolaryngology	632	419	23,500	23,264
Psychiatry	957	637	25,000	34,914
Pathology	195	195	250,000	197,652

(a) Total and paid claims data are provided for 17 specialties and, therefore, do not add to totals for all claims.

(b) Includes radiology, diagnostic radiology, and therapeutic radiology.

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6 **Pediatric Gastroenterology: Relevant Concepts for the Practitioner** Minneapolis Children's Medical Center; Education Center; Minneapolis Children's Medical Center, Minneapolis, Minnesota. CONCTACT: Kathy Ingerson, 2525 Chicago Avenue South, Minneapolis, Minnesota 55404; (612) 863-5884.

6-7 **Communication & Relationship Patterns Between Mothers and Daughters** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

6-7 **American College of Physicians - Minnesota Scientific Meeting** Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Gerald R. Onstad, Department of Medicine, Hennepin County Medical Center, 701 Park Avenue, Minneapolis, Minnesota 55415; (612) 347-2703.

6-7 **Nutrition in the 80s** CME, University of Minnesota Medical School; Earle Brown Continuing Education Center, St. Paul Campus, St. Paul, Minnesota. CONTACT: Office of CME, Box 202 Mayo, 420 Delaware Street SE, Minneapolis, Minnesota 55455; (612) 626-5525.

7-8 **Minnesota Society of Clinical Pathologists Fall Tumor Seminar** Minnesota Society of Clinical Pathologists; Crown Plaza Hotel. CONTACT: Teri Davids, MMA, 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414; (612) 378-1875.

8 **ENT For The Primary Care Physician** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

8 **Pre-Term Labor** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

9-11 **Clinical Reviews** Mayo Clinic/Mayo Foundation; Mayo Civic Auditorium, 2nd Avenue, Rochester, Minnesota. CONTACT: Lori A. Haling, Postgraduate Courses, Mayo Clinic, Rochester, Minnesota 55905; (507) 284-2509.

13 **AIDS Conference** Hennepin County Medical Center and Hennepin Faculty Associates; Pillsbury Auditorium, Hennepin County Medical Center, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, HCMC, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

12-14 **Clinical Strategies in Primary Care** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

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14 **Minnesota Society of Anesthesiologists Fall Scientific Program** Minnesota Society of Anesthesiologists; L'Hotel Sofitel, Bloomington, Minnesota. CONTACT: Doug Koentop, M.D., University of Minnesota, Anesthesiology Department, Minneapolis, Minnesota 55455; (612) 624-6997.

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20-21 **Primary Care Symposium** Methodist Hospital Family Medicine Department; Registry Hotel, Bloomington, Minnesota. CONTACT: David Williams, M.D., 6500 Excelsior Boulevard, St. Louis Park, Minnesota 55440; (612) 932-5190.

DECEMBER 1987

3-5 **Cardiopulmonary Medicine** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

4 **Twentieth Annual Symposium on Obstetrics and Gynecology** North Memorial Medical Center; North Memorial Medical Center, Robbinsdale, Minnesota. CONTACT: Molly Kundinger, 3300 North Oakdale, Robbinsdale, Minnesota 55422; (612) 520-5940.

5 **Minnesota Obstetrical and Gynecological Society Fall Meeting** Minnesota Obstetrical and Gynecological Society; Marquette Inn, IDS Center, Minneapolis, Minnesota. CONTACT: T.M. Julian, M.D., Box 395 UMHC, Minneapolis, Minnesota 55455; (612) 626-6034.

15 **Pediatrics — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

JANUARY 1988

15-16 **The First Annual OB/GYN Scientific Conference** Hennepin County Medical Center and Hennepin Faculty Associates; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, Hennepin County Medical Center, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

29-30 **New Drugs and New Uses for Old Drugs** Park Nicollet Medical Foundation; Naegele Auditorium, Park Nicollet Medical Center, Minneapolis, Minnesota. CONTACT: Elaine Anderson, Director of Professional Education, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 935-3535.

FEBRUARY 1988

1-5 **Current Concepts in Cardiovascular Diseases** Mayo Clinic/Mayo Foundation; Buena Vista Palace, Orlando, Florida. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

10-14 **Basic Review and Recent Advances in Head and Neck Surgery** Mayo Clinic/Mayo Foundation; Hyatt Orlando, Orlando, Florida. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

22-26 **Selected Topics in Internal Medicine** Mayo Clinic/Mayo Foundation; Sheraton Scottsdale, Scottsdale, Arizona. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

FEB 23-MAR 12 **South America Air/Sea Cruise aboard the Royal Viking Sea** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

FEB 23-MAR 12 **South Pacific/Australia, New Zealand, including Great Barrier Reef** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

FEB 29-MAR 4 **Neurology in Clinical Practice** Mayo Clinic/Mayo Foundation; Kauai Hilton, Lihue, Kauai, Hawaii. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

MARCH 1988

14-16 **Gynecologic Surgery - 1988 Update** Mayo Clinic/Mayo Foundation, Wyndham Hotel, Palm Springs, California. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnnesota 55905; (507) 284-2509.

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Pathologist BC AP/CP, 12 years' experience. Seeks position as associate pathologist for group, or director of smaller laboratory. Available January 1, 1988. Call (218) 736-4976. 3-1/87

Family Practioner: Enjoy the best of both worlds in a rural practice located one hour west of Minneapolis-St. Paul. A 7-physician primary care practice is seeking a board certified or board eligible family practitioner to join this rapidly expanding practice with three office locations. This is an excellent opportunity for a family practitioner who wishes to develop a strong OB practice. For further information, call: Pat Moylan, Park Nicollet Medical Center, 5000 West 39th Street, St. Louis Park, Minnesota 55416; (612) 927-3286. *1-11/87

Faculty Positions, Department of Surgery —The University of Iowa Department of Surgery invites applications for faculty positions of all ranks for M.D.s with special qualifications in: 1) all areas of general surgery and plastic surgery, 2) cardiothoracic surgery and 3) neurosurgery. The University of Iowa does not overlook qualified candidates who are women or members of ethnic minority groups. Written only inquiries and CV direct to: R.J. Corry, M.D., professor and head, Department of Surgery, The University of Iowa College of Medicine, Iowa City, Iowa 52242. We are an Equal Opportunity/Affirmative Action employer. *1-11/87

The University of Minnesota School of Dentistry invites applications for Research Fellow (DDS required) and Research Associate (PhD required) positions. Applicants must have at least two years of research training. Positions will provide research expertise in planning and execution of research design and methodology. The University of Minnesota is an equal opportunity educator and employer and specifically invites and encourages applications for women and minorities. Send resume, indicating areas of research training to: Dean Richard P. Elzay, University of Minnesota School of Dentisty, 515 Delaware Street SE, Minneapolis, Minnesota 55455. *3-11/87, 2/88, 5/88

For Sale: GEMSTAR, Chemistry Analyzer. Three years old. Asking $8,000. Inquiries welcome. R.F. Fernandez, Jr., M.D., 3366 Oakdale Avenue North, #204, Minneapolis, Minnesota 55422. 1-11/87

Emergency Medicine: for emergency physician who possess excellent clinical and trauma skills within a group of seven Emergency Room physicians. Located in beautiful northwest Wisconsin area. Please send CV to: Dr. M. Jaghlit, 900 West Clairemont Avenue, Eau Claire, Wisconsin 54701; or call (715) 839-4404. 6-4/88

Pediatrician: BC/BE, to join four busy pediatricians in progressive multispecialty group of 70 physicians. Excellent, active pediatrics unit, level II nursery at nearby community hospital. Referral area 150,000. Liberal financial benefits, high quality of life, and many outdoor recreational opportunities. Send CV and references to: Timothy V. Swanson, M.D., Affiliated Medical Centers, 101 Willmar Avenue SW, Willmar, Minnesota 56201 or call (612) 231-5000. 6-4/88

Wobegon Remains Intact (At least its geographical equivalent thrives). Do you need more time to live and breathe while practicing medicine? I desire to share my busy practice with a like-minded BC/BE otolaryngologist. I am located in the midst of a large midwest recreation area; town size approximately 12,000; drawing area 40,000. Located 140 miles from major metropolitan area. University and Mayo Clinic referral available. Please send CV and letter describing lifestyle, work habits, and goals. Mail written response to: David G. Monson, M.D., 1903 South Sixth Street, Brainerd, Minnesota 56401. 3-1/88

General Surgeon - BE/BC: Outstanding opportunity for aggressive, young surgeon with a highly profitable, well-established, fee-for-service, multispecialty clinic. 14 physicians on staff. Ready-made practice. Unmatchable guaranteed salary first year, then ownership. New hospital. Wonderful family town with nationally recognized school system and unequalled outdoor recreation possibilities. Telephone calls will not be accepted. Send CV to: John Brust, Mesaba Clinic, 1814 14th Avenue East, Hibbing, Minnesota 55746. 3-1/88

55-Physician Multispecialty Group Practice has immediate openings for board certified/board eligible oncologist, pediatrician, adult psychiatrist, child psychiatrist, adult neurologist, child neurologist, endocrinologist, rheumatologist, general internist, and otolaryngologist. Fee-for-service practice. Guaranteed first-year salary with life, health, malpractice, and disability insurance, educational benefits, and early partnership. Contact: Michael R. Ferrell, M.D., Central Plains Clinic, Ltd., 2727 South Kiwanis Avenue, Sioux Falls, South Dakota 57105. 1-11/87

Family Practice For Sale: Ideal location in outer metropolitan Twin Cities area. Includes X-ray, modern lab, and all ancillary equipment, which is in excellent condition. Reasonably priced. Ideal situation for family physician who wishes to take over existing practice and enjoy immediate patient load and income. Practice easily expandable, if desired, in this rapidly growing area. Write: Minnesota Medicine (816), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Urologist Physician board certified/board eligible to join 23-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Kneusel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-1/88

Windom, MN - Two BC/BE FPs Needed to join expanding, aggressive practice. Senior partner with fellowship in geriatrics; junior partner residency-trained. 10-year-old JCAH-accredited hospital. Beautiful 2-year-old, 6-doctor clinic adjoining hospital. Candidates must do OB. Possible academic affiliation. For the best in a progressive practice with the advantages of small-town living contact: Windom Clinic Ltd., James A. Gamache, M.D., Route 2, Box 63B, Windom, Minnesota 56101, or call collect: (507) 831-2550 or (507) 831-2400. 6-4/88

Twenty-nine Physician Multispecialty Clinic located in desirable east-central Wisconsin location is seeking board certified or board qualified orthopedic surgeon to round out its services. Lab, X-ray, excellent hospital. Liberal quarantee and benefits. If interested, contact: D.F. Sweet, M.D., Fond du Lac Clinic, S.C., 80 Sheboygan Street, Fond du Lac, Wisconsin 54935. (R)

Family Practice: Full-time or part-time physician is needed to assume established practice opportunity in a 7-physician group. We are located 45 minutes from the Twin Cities area. Competitive salary and benefits. Contact: D.L. Wagoner, M.D., 525 18th Street East, Glencoe, Minnesota 55336 or call (612) 864-3116. 3-1/88

Internal Medicine: Board certified or eligible to join 12-physician, expanding, multispecialty practice in northern Wisconsin. Clinic adjoins JCAH hospital. Rural location with abundant outdoor recreational opportunities, small four-year college. Excellent salary and benefits. Call collect: (715) 532-6651 or send CV with names of references to: John C. Smylie, Administrator, Marshfield Clinic - Ladysmith Center, 906 College Avenue West, Ladysmith, Wisconsin 54848. *3-1/88

Family Practice Physician - wanted to join a 19-physician multispecialty primary care clinic located across from North Memorial Medical Center, a progressive and modern hospital in Robbinsdale, Minnesota. Very competitive salary and benefit package. Three contemporary offices. Please contact: Dan Noonan, M.D., at North Clinic, 3366 Oakdale Avenue North, Robbinsdale, Minnesota 55422; telephone (612) 588-4625. 3-1/88

OB/GYN-Minneapolis to join a growing three-member private practice. Excellent referral base from FPs. Practice located at Riverside Medical Center (Fairview & St. Mary's) with downtown and north Minneapolis offices. Contact: Joseph Hamel, M.D., 2414 South 7th Street, #805, Minneapolis, Minnesota; (612) 337-8835. 2-12/87

OB/GYN, board certified or eligible, to join highly progressive, rapidly growing practice. Normal and high-risk obstetrics emphasized along with highest levels of infertility care (microsurgery, GIFT, IVF, laparoscopic laser surgery), as well as extensive gynecology and surgery practice. Easy lake country or Milwaukee suburban living. Salary and guarantees to meet your needs with opportunity for partnership in one year. Available July 1988, or earlier. Contact: Matt Meyer, M.D., Women's Health Care, S.C./ Milwaukee Regional Fertility Center, 426 West Main Street, Waukesha, Wisconsin 53186; (414) 549-1333. 4-2/88

Internal Medicine Physician, board certified/board eligible to join 23-physician multispecialty group in Winona, Minnesota, with existing 9-physician Internal Medicine Department. Total draw of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-1/88

Pediatrician wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Pediatric Department of four physicians in a very busy practice. Please address inquiries to: Ronald J. Jankowski, M.D., Ramsey Medical Center, 5300 153rd Avenue, Ramsey, Minnesota 55303, or phone (612) 427-7180. 3-1/88

Family Physician: We are seeking a BC/BE family physician to join our six family practitioners and one surgeon in long-established central Minnesota clinic. Accredited hospital with recent addition. Excellent income plus incentive potential and benefits including future partnership. Contact: Tim B. Schmitt, M.D., or Julie Geiser, Clinic Administrator, Wadena Medical Center, Ltd., 4 NW Deerwood Avenue, Wadena, Minnesota 56482; (218) 631-1360. 2-12/87

General Internist to join six-man internal medicine clinic in Duluth, Minnesota. Subspecialty interest encouraged. Competitive first-year salary and benefits. Contact: David R. Albright, M.D., or Randall L. Johnson, M.D., 220 Medical Arts Building, Duluth, Minnesota 55802; telephone (218) 727-8585. 3-1/88

40-year-old Internist Seeks BE/BC Internist to provide locum tenens in this central Minnesota resort community. Beautiful lakes and expanding retirement area. New 162-bed hospital with all specialties. Offices in five-year-old medical office building. Write: Minnesota Medicine (807), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. 4-9/87

Family Physician Sought to join a group of five board certified family physicians practicing in a city of 3,500 population in the beautiful Minnesota River Valley. New hospital with new attached clinic and satellite locations with the very latest in equipment. Very busy, growing practice. Contact: D. Carter, M.D., (612) 564-2511 (office), (612) 564-4409 (home), 295 Tenth Avenue, Granite Falls, Minnesota 56241. (R)

Southwestern Minnesota Community of 1,500 is seeking a primary care physician to join another physician in an active family practice (non-HMO) clinic. A 17-bed hospital and 41-bed intermediate care nursing facility are located within the community. Excellent location and potential for personable, aggressive individual in a quiet, rural setting. Preferred BC/BE. Send inquiries to: Timonthy E. Nealy, M.D., Adrian Medical Clinic, Adrian, Minnesota 56110, (507) 483-2845; or Charlotte Heitkamp, Administrator, Arnold Memorial Hospital, Adrian, Minnesota 56110-0279; (507) 483-2668. (R)

Special: London, England, fully furnished apartment for rent, payable USA, long or short lease. Exclusive Chelsea area - Cheyne Court. 3BR, 2 bath with shower, living room with TV, dining room, kitchen, and entry. Easy for Gatwick and Heathrow airports. Across from River Thames, close to Victoria Station, the Houses of Parliament, Harrods, King's Road, on bus routes, near underground, and much more. For more information, please call Mrs. John Matthews at (612) 475-2331. (R)

Internal Medicine Section: Multispecialty group of 71 physicians seeking internist with subspecialty in endocrinology and/or rheumatology. Some general medicine. Large referral area in lake region of west central Minnesota. Competitive salaries, excellent pension, vacation, and sabbatical programs. Send CV to: Patricia D'Aquila, M.D., Willmar Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201, or call (612) 231-5000. 3-11/87

Internal Medicine: Busy three-physician internal medicine group seeks additional associate. Competitive salary with opportunity for rapid advancement. Located in northwestern Minneapolis suburb. Contact: Dr. Stec, PO Box 29188, Minneapolis, Minnesota 55429; (612) 428-2454. 3-11/87

Family Physician who enjoys obstetrics wanted to join a progressive family-practice-oriented group in Wadena, Minnesota. This is an excellent opportunity for a self-starter who enjoys work, as the clinical practice is busy. Beautiful area, great community for family. For details contact: Dr. Tim Schmitt, (218) 631-1360, or James Lawson, Administrator, Tri-County Hospital, Wadena, Minnesota 56482; (218) 631-3510. (R)

Neurology: Board certified/board eligible neurologist with EEG/ EMG evoked potential experience needed to associate with an established practice. Minneapolis-St. Paul area with large teaching hospital privileges. Please send CV to: Minnesota Medicine (815), 2221 University Avenue SE, Minneapolis, Minnesota 55414. 3-11/87

Pediatrician wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Pediatric Department of four physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or phone (612) 780-7032. (R)

Family Physician to join group of board certified family practitioners and one board certified general surgeon. Liberal vacation and education allowances. Competitive salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013, Phone: (507) 526-7371, Personal Phone: (507) 526-3177; Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682. (R)

Wanted: Family Practitioner, Internal Medicine: Central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (813), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Wausau Medical Center seeks BC/BE associates in Anesthesiology, Dermatology, Family Practice, Infectious Disease, Internal Medicine, Obstetrics/Gynecology, Rheumatology, and Walk-In. New facility situated across the street from new hospital. Full partnership in three years. Easy access to lakes, woods, and mountains. Write (include CV) to: D.K. Aughenbaugh, M.D., Medical Director, Wausau Medical Center, 2727 Plaza Drive, Wausau, Wisconsin 54401. 5-12/87

OB/GYN: Interstate Medical Center of Red Wing, Minnesota, is seeking BE/BC OB/GYN surgeon to join an established three-physician OB/GYN department. Guaranteed salary with excellent fringe benefits. Contact: John Walsh, M.D., Interstate Medical Center, PO Box 54, Red Wing, Minnesota 55066. 4-11/87

Internist needed to join well-established practice in a community of 45,000. First-year salary guarantee with excellent fringe benefits. Contact: Diagnostic Center, 304 Belle Avenue, Mankato, Minnesota 56001; (507) 388-1655. (R)

Family Physician wanted to join four others in rapidly expanding North Ridge Family Medicine Clinic. New clinic facility in North Mankato. Mankato population 40,000+, opportunity for partnership after one year. Call or write: Tony Giefer, M.D., 1695 LorRay Drive, North Mankato, Minnesota 56001; (507) 387-8231. (R)

Bemidji, Minnesota: Immediate opportunity for an additional Board Certified/Eligible orthopedic surgeon to join young 26-physician multispecialty group practice located in Northern Minnesota. Clinic adjacent to modern, well-staffed and equipped hospital. Competitive salary guarantee plus incentive first year. Excellent benefits and educational leave. An excellent opportunity for a physician to enjoy the practice of orthopedics in the center of hunting, fishing, and clean air. Please respond with CV to: Thomas E. Miller, M.D., or C.C. Lowery, Administrator, Bemidji Clinic, Ltd., 1233 34th Street NW, Bemidji, Minnesota 56601. (R)

Arizona-Based Physician Recruitment firm has quality opportunities coast-to-coast. Available positions in most primary care and surgical specialties to include Ob/Gyn, Orthopedics, ER, and ENT. "Quality Physicians for Quality Clients since 1972." Call (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 9-12/87

Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30 bed acute and 86 bed long-term care facility with a clinic located next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minneseota 55072; (612) 245-2212. *(R)

Sathe & Associates Executive Search Firm is currently seeking physicians for positions locally and nationally. Explore new opportunities with a medical professional who is discreet and thorough. Be assured your CV will be handled in strictest confidence. There is, of course, no financial obligation to candidates. To initiate your search, please call or write: Liz Johnson: Sathe & Assocaiates, Inc., 5821 Cedar Lake Road, St. Louis Park, Minnesota 55416; (612) 546-2100 (R)

General Internist, Urologist, Ophthalmologist, Internist-Cardiologist, Family Practice positions available with the Mankato Clinic, a 35-doctor multispecialty group practice in South-central Minnesota with a trade area population of 150,000. Salary first year, incentive thereafter, with full range of benefits and liberal time off. For more information, call Roger Greenwald, Administrator, or Dr. B.C. McGregor (507) 625-1811 or write: 501 Holly Lane, Mankato, Minnesota 56001. (R)

Physician Opportunities available in suburban area near Minneapolis/St. Paul for family practice ob/gyn, internal medicine. New clinic venture with hospital. Large service area with beautiful communities, lakes, recreation. Write: Minnesota Medicine (800), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Canterbury Inn Bed & Breakfast: Rochester's unique alternative to hotel living. Victorian charm with modern comforts. Private baths, fireplace, central air conditioning, gourmet or special diet breakfast anytime, "tea-time" (wine, hors d'oeuvres, etc.) daily. Private, off-street parking, three blocks to Mayo Clinic and St. Mary's. A very special place for you, your colleagues, and your patients while in Rochester. $50/single, $60/double. 723 Second Street SE, Rochester, Minnesota 55902; (507) 289-5553. (R)

Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, general internal medicine or with subspecialty training in ear/nose/throat, orthopedic surgery and obstetrics/gynecology. Bemidji Clinic is a 25-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or H.J. Hoody, M.D., Medical Director; (218) 751-1280. (R)

BE/BC Family Practice, Internal Medicine, OB/GYN & Psychiatrist: Excellent opportunity to join a well-established, progressive, 15-physician multispecialty group (7 FP, 4 IM, 2 GS, 1 OB/GYN, 1 DERM) located in an economically sound community of 19,000 (drawing area of 30,000), 65 miles south of Twin Cities. Full membership after one year. One FP retiring in 1987. Competitive salary and fringe benefit package. Contact: Pat Greenwood, M.D., or Jim Wilkus, Administrator, 134 Southview, Owatonna, Minnesota 55060; (507) 451-1120. (R)

Downtown Office Space For Rent. Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553. (R)

BE/BC OB/GYN or Gyn/Gyn Surgery, Internal Medicine, Family Practice, Dermatology, Otolaryngology, Orthopedic Surgeon: A well-established progressive 10-physician multispecialty group in southern Minnesota, a community of 12,000 (trade area of 70,000), competitive salary and fringe benefits. Send CV to: Minnesota Medicine (810), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

FP/GP Locum Available for Work Lic. Minnesota, Wisconsin, SD, ND, Colorado, Utah, Missouri. Contact: Dr. Olin, 10 Riverside Drive, Duluth, Minnesota 55808; (612) 475-9411. (R)

General Surgeon and Family Physician needed for busy five-physician practice. Guaranteed first-year salary with excellent benefits program. Located only 22 miles from Duluth on the beautiful North Shore of Lake Superior. Call collect: (218) 834-2171, or write Steve Bjorum, Executive Director, Community Health Center, 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

Physicians Needed: Opportunities nationwide!! Call (612) 633-4990 or send CV to: Earl Czech, North Central Staff Services, Inc., 443 — 8th Street NW, St. Paul, Minnesota 55112. (R)

Neurology, Hematology/Oncology, Rad. Oncology: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

Primary Care and Pulmonary: 80 miles from Kansas City. 30 miles from 65,000-acre lake, Sedalia, Missouri. Contact: Rob Clemens, M.D., (816) 826-8384 evenings. (R)

Family Physician: Twin City convenience care center seeking full-time or part-time family physician to provide care for minor emergencies and illness. Competitive salary. Send CV to: Richard M. Gebhart, M.D., Grove Square Convenience Care, 13800 83rd Way, Maple Grove, Minnesota 55369; or call (612) 420-5822 days or (612) 420-5279 evenings. 3-12/87

Internal Medicine: BE/BC. The Alexandria Clinic, PA is seeking to add another internal medicine physician to our multispecialty clinic. The clinic currently has 10 family practice, 1 OB/GYN, 1 pediatrician, 1 surgeon and 2 internal medicine physicians. This position offers enough free time to enjoy the many lakes, excellent fishing and hunting as well as the winter sports in our area. Please contact: Tim Wieben, Administrator, Alexandria Clinic PA, 610 Fillmore Street, Alexandria, Minnesota 56308; (612) 763-5123 or home, (612) 763-6702, for further informaton. 3-12/87

Family Physician/Emergency Room: Full-time salary working weekends, primarily emergency room. Flexibility available. Falls Medical Center, PA, 105 Shorewood Drive, International Falls, Minnesota 56649. Please contact: A. Johnson, M.D., or A. Marc Gorden, M.D., at (218) 283-9431 for more information. (R)

Family Practitioner, General Internist, and General Surgeon to join 8-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance, vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

OB/GYN: Central Minnesota Obstetrics & Gynecology, PA of St. Cloud, Minnesota, is seeking BE/BC OB/GYN to join a rapidly growing practice in central Minnesota. Guaranteed salary with excellent fringe benefits. Please send CV to: Michael C. Flanagan, M.D., 2025 Stearns Way, Suite 114, St. Cloud, Minnesota 56301. 2-11/87

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's thirteenth largest lake. Good hunting and fishing. Modern nine-year old hospital. Twenty miles to University Campus. Call or write: Robert Bosl, M.D., Starbuck Clinic PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Physician- Board certified/board eligible psychiatrist with background in the treatment of chemically dependent individuals. Position offers a competitive salary, basic 40-hour week with limited on-call responsibility, malpractice coverage, 30 days paid vacation, and other excellent fringe benefits in a JCAH-accredited, progressive 802-bed medical center, having 72,000 outpatient visits per year, adequate staffing, including physician extenders, and offers research opportunities. The city of St. Cloud, Minnesota, and the surrounding area boasts of high quality family living for its residents who enjoy clean air, a wide variety of four-season outdoor recreational opportunities, excellent hunting and fishing in the "Land of 10,000 Lakes" and outstanding educational facilities which include three universities. Located between the Twin Cities of Minneapolis and St. Paul and northern lake country. Financial assistance to defer cost of relocation. Equal Opportunity Employer. Write or call: Thomas Plombon, Personnel Service, Veterans Administration Medical Center, St. Cloud, Minnesota 56301; (612) 252-1670, ext 619. *2-11/87

Medical Space For Rent at 6224 Lyndale Avenue South, Richfield, Minnesota. 1975 square feet. Previous general practice at site for 35 plus years. Available immediately. Terms negotiable. Call Bob McNab (612) 866-6641. (R)

Psychiatrist: Position available for an adult psychiatrist with interest in adolescents, board eligible or certified to join board certified psychiatrist in a very active, private practice including both inpatient and outpatient services. The Community Hospital has a 12-bed mental health unit and is fully accredited (JCAH) and certified (HCFA). Salary plus benefits first year with professional association thereafter. In Hutchinson, Minnesota, population 10,000; 65 miles west of Twin Cities; with cultural opportunities; good economy with growing industry in 3M Company and Hutchinson Technology Inc., along with excellent school systems including a vocational technical institute. Please send resume to: Dr. John O. Fluegel, M.D., Hutchinson Mental Health Associates, 1091 Highway 15 South, Hutchinson, Minnesota 55350; (612) 587-9652. 3-12/87

Internist BE/BC to join two young internists in growing practice in Michigan's beautiful Upper Peninsula. New local hospital. Campus for Michigan State University Medical School. Community of 15,000. Send CV or call: Drs. Spender and Kuehnl, 218 South 10th Street, Escanaba, Michigan 49829; (906) 786-1563. (R)

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Minnesota Academy of Ophthalmology
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Cover Photograph

On the Back 40

Timothy Cady, M.D., took this cover photograph one hoarfrosty day last December on the "back 40" of the Buffalo Clinic property. He used an AE1 Program Canon with ASA 100 Ektachrome film.

Dr. Cady has been in family practice with the Buffalo Clinic for 16 years. In addition to photography, he enjoys outdoors sports like sailboarding and downhill skiing.

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a foreword

Thoughts on Quality

Richard L. Reece, M.D.

> *"Quality, or whatever our term for what is good and valuable of its kind, is the chief value of almost all aesthetic appraisal; if not the whole, then certainly the heart, of criticism. What is good and valuable will seldom be flawless; but what it lacks, or in what ways it is limited, will neither disfigure nor discredit it, and in every age we feel the need to search it out."*
>
> Louis Kronenberger
> Quality: Its Image in the Arts
> New York: Antheneum, 1969

This issue of *Minnesota Medicine* contains two interviews on quality — one with Dr. Paul Batalden, vice president of medical care at the Hospital Corporation of America, and the other with Dr. Walter McClure, president of the Center for Health Policy Studies. Both talk of their thoughts on quality in medicine and what can be done about it.

I expressed my own thoughts on this subject in an April 1987 talk before the American Academy of Family Physicians. I shall share portions of my comments with you now:

You have been kind enough to ask me to discuss quality of care. This is a tall order since no one has defined "quality of care." It's a concept disturbingly in motion. At the very least, people are having a tough time articulating it. You might say a kind of articulate fibrillation — verbal brownian movement — is at work.

But I shall have a go at the subject anyway. After all, as a pathologist, I'm used to defining things, even if it's too late. A pathologist is said to be a doctor's doctor. This reminds me of the story of the son of a doctor. The young lad was concerned when his doctor father fell ill while serving as a doctor for another doctor. He asked his mother: "Mommy, who doctors the doctor's doctor when the doctor doing the doctoring needs doctoring?"

Questions of Quality Not Usually Asked

The boy had a simple question about doctoring. I have a set of my own. Does the constant digression of scientific and medical minds to business matters lower quality? Can you be both MD and MBA? Do patients want their physicians to be business people? What is the proper profit margin? Should businessmen, with a vested interest in "underserving," run the system? At what point does cost-cutting depress quality? What effect will charging ancillary lab work and X-rays against your utilization profile have? What effect will discouraging the best and brightest from coming into medicine have? Will we follow the public teaching profession in the United States, where the teachers have lower SAT scores than the students they are teaching, where those that stay have SAT scores 168 points less than those who leave?

A Gluttonous View of Quality

What is the big problem of quality? Walter McClure says it's sheer glut. A high-quality and efficient medical system needs 1.5 to 1.7 physicians and 2.5 to 2.8 hospital beds per 1,000 patients. We already have 2.2 physicians and 4.5 beds. What are the quality consequences? McClure says there are four:

- Primary care doctors stop referring because they need the fee themselves. People now ask for free consultations rather than for appropriate referrals that can be charged against their profiles;
- Specialists no longer see enough patients to maintain their skills, and they dilute their skills further by taking on primary care patients they are not trained to treat;
- Glut lowers the income of doctors. Severe income reduction lowers the talent drawn into medicine. For the best and the brightest, the risk-rewards ratio simply isn't worth it;
- Doctors lose control. With few exceptions, the ethics, standards, and traditions of medicine protect quality. Entrepreneurs usually have high integrity, but not always and not as consistently. As physicians we are vulnerable to business sharks.

Exploiting Quality

Quality is something we ought to exploit. After all, we are the only ones who can judge it. We cannot fall back on that old shibboleth that fee-for-service medicine is inherently better than HMO medicine. Ninety-five percent of us in the Twin Cities practice both brands of medicine, and we don't change our stripes between patients. We all, or soon will, practice hybrid medicine. Anecdotal HMO horror stories have their place in that they move the media to action and alter HMOs to practice vigilant medicine. They may also jolt the public into awareness of such options as discounted fee-for-service, IPAs, PPOs, and innovative Blue Cross programs.

I say let's go to work to learn how to define quality; let's measure it; let's get our medical societies behind it; let's form a think tank to study it; let's label it No. 1 on our agenda; let's convince the public that quality is what we're after; let's encourage the Blues to get their Medigroups and population variation analyses into the field as soon as possible.

What is Quality Anyway?

Is quality the way you've practiced all these years? After all, most patients like their doctors, don't they? To me quality is four things:

- It is prestige and status. It's having enough autonomy, authority, and income to attract talented people into the profession;
- It is still the environment of a collegial profession, where colleagues have a common educational base and where these colleagues are judged as equals until proven otherwise — it is a matter of faith and trust in peers, even though I know that is not enough;
- It is a statistical batting average, in which computers will be used to judge case mix, severity index, outcomes, and comparison with peers on a given DRG or a given disease;
- The practice of quality is an art and a science, just as the practice of medicine is. There are subjective elements to quality. Judging the interactions between human beings is a very tricky business: It depends on the patient, the disease, the personalities, and the circumstances.

As David Eddy of Duke University has noted: "Uncertainty creeps into medical practice through every pore; whether a physician is defining a disease, making a diagnosis, selecting a procedure, observing outcomes, assessing probabilities assigning preferences, or putting it all together, he is walking on very slippery terrain. It is difficult for nonphysicians, and for many physicians, to appreciate how complex these tasks are, how poorly we understand them, and how easy it is for honest people to come to different conclusions."

But as tough as it is, we must take the lead on quality. And through some rational combination of peer review, patient satisfaction, severity-indexed outcome review, and variation of practice style analysis, I believe we will.

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editor's notebook

Quality in Medicine — The View from the Hospital Corporation of America

An Interview with Paul Batalden, M.D.

HCA Vice President for Medical Care

Prologue: This is an interview I conducted with Paul Batalden at his spacious corner office at the Hospital Corporation of America headquarters in Nashville, Tennessee. I had known Paul during his days as a physician at the Park Nicollet clinic, and I was intrigued with how he had adapted to his new corporate environment. At Park Nicollet, Paul was executive vice president for professional management and a practicing pediatrician. At various times, he served as chief officer of the Park Nicollet Medical Center, president of the Research Foundation, and chief of the Department of Pediatrics. Paul is noted for his idealism, intellectual acuity, clarity of expression, and devotion to the idea of an integrated approach to quality in American medicine.

REECE: Dr. Batalden, you were at the Park Nicollet clinic in a 270-man group here in Minneapolis and now you're in a $5 billion a year international health care corporation. Has that altered your view of the quality control world or just confirmed your previous beliefs?

BATALDEN: In both settings, there are solid citizens who yearn for the continuous improvement of quality. And there are also systems, pressures, and people who work against that improvement. Whether the organization is big or small, local or international, you find that mix of people.

One of the advantages we have in a company this large is that we can bring together a critical mass of people to make things happen that you can't make happen at the local level. But what we do here is not nearly as important as what's done between physicians and patients.

Continuous Improvement

REECE: What do you hope to contribute here at HCA, and what do you hope to accomplish?

BATALDEN: We wish to change the way people think about quality, quality measurement, and quality improvement in health care in the United States.

REECE: And how do you go about that?

BATALDEN: By building largely on the insights of a man by the name of Walter Shewhart and people who followed after him, Dr. W. Edwards Deming and others. They have demonstrated that the process of continuous improvement has worked successfully in the last three or four decades in Japan. A whole field of quality improvement technology exists that medicine and health care have not taken advantage of. We're seeking to systematically apply those insights to the service sector, and more particularly to health care. We believe that it's going to take ten or fifteen years for this to happen.

REECE: Dr. Deming was an MIT professor, was he not, who went to Japan after World War II to teach the Japanese about quality?

BATALDEN: Yes. The story is in David Halberstan's book, *The Reckoning*. In 1950 General MacArthur invited Dr. Deming to Japan because Japanese industry leaders were unable to decide how they would ever compete in the global economy. MacArthur wanted to help teach them to do that. He asked Dr. Deming to help. Deming had something useful to tell them, if you judge by the result. It's Deming's insight that I've been focusing on. I think it can be applied to health care and health services.

REECE: You mentioned in a previous conversation the Japanese concept of kaizen. Tell us about kaizen.

BATALDEN: It means continuous improvement. One Japanese consultant has even written a book about it. It's simply Shewhart's cycle of continuous improvement. That concept of continuous improvement says that you look at processes and activities over a longitudinal perspective. You gather management information, and you use that information to make continuous improvement. We are so preoccupied with making comparisons with A versus B versus C versus D that we forget to make the comparisons of A

HCA cont. on p. 682

The View from the Eye of Minnesota's Health Care Hurricane

An Interview with Walter McClure, Ph.D.

President, Center for Health Policy Studies

Prologue: *Walter McClure may be the most interviewed health care policy expert in America. For good reasons, too. For the last 20 years he has been in the eye of the Twin Cities' health care hurricane. Indeed, he helped propel it into motion, and he keeps it whirling in his role as a staunch champion of health care reform as a better answer for quality health care than national health insurance. He has a first-class mind and he doesn't hesitate to give you pieces of it in a clear, forceful, and memorable fashion. He is not only a thinker but a doer. In Pennsylvania, he is the main force behind a five-site demonstration project to prove that quality can be measured and rewarded in a competitive environment.*

REECE: What's wrong with our current approach to quality?

McCLURE: That's easy. Nobody is paying for quality and efficiency. At the most, people are paying for cheapness, or else they're simply paying the way they've paid in the old system, which was, "Tell us what you charge, and that's what we'll pay."

REECE: Why isn't quality important now?

McCLURE: What's holding us up is the fact that you're punished for quality. Anybody who measures their quality runs into powerful disincentives. First, you incur a cost that your competitors don't. Second, and even more important, the professional devisiveness created by one doctor looking over another doctor's shoulder is so substantial that nobody wants to put up with it. If you are a hospital, your doctors might leave, so you don't want to do it. They'll stop referring patients to you and retaliate in all the other ways that doctors retaliate against each other if they get too nosey. There's a powerful professional penalty for anyone who tries to put poor performers out of business by taking their patients away.

The third disincentive for a doctor or hospital is malpractice liability. When you measure your batting average, you find out you don't bat a thousand, and there are sharks out there lying in the waters, waiting to find out where you screwed up.

REECE: What is quality?

McCLURE: Three things. One, are the patients happy? Two, technical efficiency — do your patients get well quicker and have fewer complications than the next physician's patients? Three, innovation — do you constantly try to improve your health results at lower cost?

REECE: What is the competitive reform strategy?

McCLURE: Again, three things. One, supply reform — putting into place competing plans. Two, demand reform — getting the purchasers to reward those who practice quality medicine. Three, access reform — getting the government and others to pay quality people to care for the uninsured.

REECE: And where do we stand in Minnesota on these three steps?

McCLURE: We're ahead on the first step. But we're stalled on the second — measuring efficiency and quality and rewarding those who offer these features. And we can't go on to the third step until we've finished step two.

REECE: How long will the three steps of supply reform, demand reform, and access reform take?

McCLURE: The first step took ten years to get off the ground. The second step will taken another ten years, but it needs work and commitment by purchasers and doctors. And the third step, the crowning step, may take another ten years.

Then everybody will have high quality health care, good coverage at a cost they and the country can afford, which is what the whole thing's about. If we don't do that, then scrap the competition strategy and turn it over to the government and see if they can solve it.

REECE: Do you think physicians understand how important step two — rewarding quality physicians and hospitals — is to their future and fortune and that of American medicine?

McCLURE: I think they know very little about

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what's going on, except for a few people like you and some physician leaders. The guy who is practicing medicine down in the trenches with the patients just can't understand all this. Practicing physicians are like Russian aristocrats two years before the Revolution. All they know is something bad is going on. They have no idea how big and how permanent it's going to be.

REECE: Three approaches to measuring quality — patient surveys, inpatient computer systems with a severity index, and defined-population variation studies — already exist in fairly advanced states. Do you believe these will be introduced on a broad scale?

McCLURE: The question is not *if*, but *when*.

REECE: How did this dire state of affairs come to be?

McCLURE: In 1970 it didn't take a genius to see what was going to happen. The only thing that you couldn't predict was when it would happen. The traditional fee-for-service medicine now had the seeds of its own destruction. It was no mystery what would happen once Medicare and Medicaid said everybody had this free lunch insurance, which we can define as going to any provider, letting them do anything they want, charging anything they want for it, and telling them somebody will pay and that the quality wouldn't be measured. In fact, if you take any industry, any field, or any system in this country and you say, "I will let the producers do anything they want and charge anything they want. I will guarantee them whatever they charge, and I will never measure the quality of the product, what do you think would happen to that industry in 15 years?

REECE: It would run amuck.

McCLURE: It would run amuck. It would be very costly. It would be very inefficient, and its quality would be all over the lot. That exactly describes medical care, and it is not something to sit there and blame the doctors for. It's something to blame purchasers for. I say to the purchasers: You paid for that, you got it. Why be surprised? Look at the incentives you created with the structure you built. Why are you surprised now that the system gets costlier and costlier? You're paying it to be costly.

REECE: Do you have anything to say to doctors?

McCLURE: There is going to be a revolution in medicine, and you're going to wreck the system or you're going to make it better. And whether you do that depends upon you. We can help you with what you're going to have to do — measure the quality of your peers and reward the good ones — but you're going to have to demand that we do it.

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HCA from p. 678

at time 1, A at time 2, A at time 3. We're always looking for the big hit in Western management.

Paradigm Shift

REECE: Is a paradigm shift in our thinking about quality about to occur in America?

BATALDEN: Yes, but let's back up to put it in context. Around 1750 or thereabouts, our forefathers in medicine were struggling to understand the significance of followers of Bacon. An enormous amount of rancor went on in organized medicine over the introduction of empirical science into the daily practice of medicine.

Yet we all know today that the blending of that tradition with samaritan tradition represented the most important kinds of gains in medical care that one could have ever dreamed of.

About ten years ago, we saw the incorporation of a third tradition, beyond the tradition of samaritanism and science. That tradition is, for lack of a better word, social accountability. It's broader than cost effectiveness; it's people taking a responsibility for their own well-being; it's people asking doctors and health care providers different kinds of questions than they used to; and it's the definition of the best results, the definition of quality changes.

When you change the fundamental thought framework behind a discipline, you change the discipline. The definition of quality today has to do with providing diagnosis and treatment at the best value. We're all struggling with that.

There's a philosopher, a historian of scientific revolution by the name of Thomas Kuhn, who has written a book about scientific revolutions. He says that when we switched from thinking about the universe as earth centered and started to think about it as sun centered, we had to redefine the whole discipline of astronomy. The questions that were asked and the standards that were promulgated all changed.

That's what happens when there's a paradigm shift. This quality business we're in right now is like that. Kuhn also says that during paradigm shifts there's a period of pronounced professional insecurity. People need to be encouraged today to do the right thing. Doctors know the right thing. They need to be encouraged to do that. And when they don't know, they need to be given opportunities to learn. Not beat over the head.

REECE: How do you give them opportunities to learn? How do you plan to educate doctors, encourage them, to teach them elements of this quality process?

BATALDEN: We're working on several approaches right now. First, we're trying to systematically identify the evidences of excellence — things doctors are doing well in this third age of medicine in a variety of health care-related institutions.

Second, we're working collaboratively with the Joint Commission on Accreditation of Healthcare Organizations to develop a program for physician leaders to help them use their positions to lead for quality.

Parenthetically, articles that have been written about preparing physician leaders have talked about the importance of teaching physicians things like marketing and accounting. Those same articles have been strangely silent about the importance of teaching physicians how to lead for quality. It's absolutely astounding to me that quality is ignored.

We're being snookered — as a profession — by letting people lead us down the wrong paths.

We have an important social role, and we need to rise to that occasion.

We're also working on publicly available data bases that are now used to bash doctors and hospitals over the head, like the mortality tables and the utilization information. We're trying to figure out ways to use these data to help doctors support the peer review process.

REECE: You were quoted in the April 24, 1987, *Wall Street Journal* as saying doctors are discouraged by the competitive environment.

BATALDEN: Basically, I said that doctors today are discouraged because they were trained in this second era of medicine, and they're being asked to practice in the third stage of medicine. So what they were taught to expect is not what they're experiencing in daily practice.

Partly as a result of this paradigm shift, doctors are easily distracted today. Down deep, doctors know that a good quality physician is an attentive physician, someone who pays a radical amount of attention to another person. That's an important insight Jacob Needleman makes in his little book *The Way of the Physician*. I tried to suggest to that *Wall Street Journal* reporter that it's important in our society to find ways of encouraging doctors to achieve excellence in this third age of medicine. We must encourage them because we need doctors who are attentive to their patients. We don't need a whole nation full of distracted and discouraged doctors. Doctors need to take heart in what they do. They need to take a sense of pride away from what they do. They need to once again be able to encourage their children to go into medicine. We need to turn things around.

REECE: You're not only a leader. You're a philosopher. Would you like to be known as the W. Edwards Deming of health care, as a person who brought a new concept of quality to the modern practice of medicine?

BATALDEN: I'd like to be known as someone who worked at the process of continuous improvement in the quality of health care and made it easier for others to do that.

REECE: Then it's your view that there's enormous room for improvement in quality in all sectors of the health care field, that this will take time, and that those who master it will survive.

BATALDEN: Absolutely. You don't have to talk to doctors to learn that reworking things done wrong consumes much of their time. How many times do doctors have to do things over because they weren't done right the first time? How limited is the real useful feedback for doctors on how they can improve the care they deliver? We'd rather just play games with doctors in the United States, it seems. At HCA we try to encourage them instead.

Quality Making

QREECE: How do you hope to demonstrate and implement your views of quality?

BATALDEN: At HCA we're working with just under 10% of the nation's practicing physicians in nearly 500 different local communities. We believe you have to show people in concrete ways how to improve the environment in which they practice. One of the things we're working on, for example, is a system by which patients in a hospital can judge the quality of the hospital experience. We intend to provide that feedback to medical staffs so that they can help hospitals improve the quality of service. We're also working on a system for doctors to judge the quality of hospital services. We think doctors can judge more than the quality of the parking lot or the food in the doctor's lounge. We also believe patients can judge quality.

REECE: Let's pursue the patient idea. It's generally said that patients can't judge quality. Yet you're telling me that they can, and they're sharp at it.

BATALDEN: I was a skeptic about this before I came to St. Louis Park. There I learned that patients could tell us a lot about the care we delivered. It was at St. Louis Park that we developed a system for patient feedback about the care they received. Since then, I have been working with my colleagues at the Rand Corporation, at the Harvard School of Public Health, and the Harvard Community Health Plan to develop sophisticated instruments for patients to judge the quality of hospital care. We think patients can judge whether the care they received was personalized or not, or whether the care was technically competent. After all, patients know when IVs run dry, or when they get the wrong-colored pill, or when the doctor who's explaining the procedure has or has not done that procedure before.

We also think patients can judge whether or not their information needs have been met, whether the hospital or the doctor or the combination of all those folks has really answered the patient's questions about his or her condition.

Patients can judge whether the services were accessible or timely; patients can judge the character of the environment within which they get the services, whether it seemed to be a comfortable and a secure environment; and patients can judge whether the outcome of the service was what they expected. Those are things patients can judge. That's more than a superficial appraisal of the service being delivered.

REECE: So you're developing a kind of a report card for patients for your HCA facilities?

BATALDEN: Yes, and we're going to make it publicly available to all the hospitals. It's important to ask these questions, but it's even more important that we do something about the information. We'll put all the instruments that we develop in the public domain. Our interest is in helping our HCA hospitals do something about the information, not just gather it.

REECE: Have you done any work on how physicians judge quality?

BATALDEN: For years HCA has been asking its physicians what it's like to practice in an HCA hospital. We're modifying that process so that it becomes a more formalized doctor appraisal of hospital quality. And we're hoping by that system to change the dialogue between doctors and hospitals so that they together can focus on the quality of service delivered to the patient.

Doctors want to talk about the quality of service that they will provide their patients. Doctors want to talk with hospitals about things that make hospitals more effective places for doctors to work; and doctors want to talk about things more substantive than parking lots, cafeterias, or whatever it is that usually preoccupies the interaction between doctors and hospitals. There's a need for us to do that — society is asking doctors and hospitals to work together better.

REECE: Let's take the employers and the buyers. They must have yet another set of criteria for judging quality.

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BATALDEN: I believe so. Third parties are people who sometimes talk the loudest, and we sometimes think they're the most important. But things can become distorted if you talk about quality with those who try to regulate health care. There isn't any way to regulate quality into a product or a service for health care.

The quality of health service has to be built into the service that's being designed and delivered, and that's why our primary focus is on patients and doctors. But an important secondary consideration of course, is the purchaser, particularly the purchaser who buys health care in the aggregate. These people are going to be looking at the costs of health care rather than the prices of health care, and they're going to be looking for the same kind of indicators of quality that professionals today look for when they try to measure quality. We'll see more of this difference between aggregate purchase of health care and solo purchase of health care, the group buyer versus the individual buyer.

REECE: You seem to be saying we should broaden our definition and completely rethink our philosophy about quality. You also are saying quality will increase productivity.

BATALDEN: The old way of thinking about quality was that it was quality versus cost. We've learned in the 40 years in the industries other than health that gains in productivity and gains in cost effectiveness accompany gains in quality.

People are not far wrong when they say 20% to 50% of the service industries' total revenue represents costs of bad quality — things that aren't done right the first time, things that require work because they weren't done properly. These are big dollar items. Improvements won't come simply.

HCA's Physician Culture

REECE: Tell me about the physician culture in HCA. This organization is now the largest health care corporation in the world. Its chief executive officer is a physician, Thomas Frist, Jr. How does his presence affect the way the organization works, or does that influence the environment and your work?

BATALDEN: From the beginning of this corporation the physician's role has been an extraordinarily important one. Dr. Frist, Jr. and his father before him have personified the concern for the role of the physician as key in the delivery of quality health care. It's been HCA's philosophy that HCA hospitals will succeed if the doctors who use and work with HCA hospitals succeed.

Dr. Frist recognizes that HCA efforts in quality improvement have to be made available to the entire health care system. He realizes that a large company has a responsibility to bring together resources such as our quality resource group. Concern about quality is not a new thing at HCA. This is the largest group of quality professionals in health care for any health care institution. It's the largest group of dedicated quality professionals.

We exist not to be responsible for quality but to see that the leadership of this company understands what the leading edge of quality making is all about. In the process of doing that, Dr. Frist also recognizes that this activity has to be done both inside and outside of HCA. So he encourages us to participate actively with JCAHO so it can redesign the standards for accreditation, or with the Office of Technology Assessment so it can create for Congress a set of wise-buyer guidelines about quality, and so on.

REECE: You seem happy in your new environment, and you're pursuing noble, large, and long-term goals.

BATALDEN: I am very excited about my position. It's a tremendous opportunity, and I'm pleased to have it. The people in Minnesota trained me well. I have tremendous respect for the quality of medical care the doctors in Minnesota practice. They taught me that doctors do care about quality.

president's letter

Strength in Friendship: The MMA and the MHA

According to Webster's, a friend is one who is attached to another by affection or esteem, or one who is of the same nation, party, or group. Based upon the esteem the Minnesota Medical Association and the Minnesota Hospital Association have for each other and the fact that both are health care associations, the relationship can certainly be classified as friendly.

Currently, the environment surrounding the delivery of health care is volatile. Historic patterns of behavior are disintegrating, leaving formerly solid relationships in tatters. The causes of all this tension are well known to all of us in medicine. We are finding it more difficult to maintain the traditional doctor-patient relationship in the face of stipulations by payers, government, and self-insurance employers. Economic pressures that are increasing the need for correct practice decision-making and leaving little room for errors continue to drain the well of personal satisfaction previously enjoyed by physicians.

The provision of health care services is fast developing a businesslike atmosphere and is seeming to lose the characteristics of a profession. Our professional association, the MMA, is not experiencing these evolving pressures exclusively, however, and we need to become more aware of the value of seeking willing partners in our struggles to make corrections. It is my hope that we can strike such a relationship with the Minnesota Hospital Association.

One example of the spirit of cooperation between the two associations occurred recently when the MHA graciously invited me to be their guest at the MHA Annual Meeting in September. I discovered both organizations share a certain commonality of interest, and I found the officers of MHA openly encouraging cooperative ventures.

Working with MHA is a natural: consider our work on rural health care, for example. As our Rural Health Task Force so ably reported in early 1987, access to health care in rural Minnesota may be in jeopardy due to economic decline causing hospital financial problems and resulting in growing numbers of uninsured persons. By jointly addressing these difficult issues, the MMA and the MHA will find greater opportunity for success.

As a result of the MHA Task Force Report on Small/Rural Hospitals and the MMA Rural Health Task Force report problems were identified that both organizations recognized should be addressed jointly. For example, the MMA report recommends two joint actions: one to conduct a joint study of small rural hospitals, and one to develop a consultative service for small hospitals. The MHA report also recommends that the MMA and the MHA coordinate their rural health care efforts.

L. Ashley Whitesell, M.D.

Perhaps it is time to consider a joint action or liaison committee of the two organizations. Such a committee could address Medicare reimbursement issues and problems of small hospitals with low occupancy. We could offer consultative and networking services, explore legislative solutions to rural hospital debt problems, and examine access to mental health services. Together we have an opportunity to arrive at successful solutions to pressing problems.

Our Hospital Medical Staff Section would be a logical place to explore possible joint efforts. The interest expressed within the section to develop risk management programs also dovetails with MHA programs. Both organizations bring experience and knowledge from different perspectives that would result in excellent programs.

The holiday season is one of joy and renewal, and it offers us all a chance to build new friendships and a chance to work to improve delivery and quality of health care. One new friendship should be exemplified in the joint efforts of the MMA and the MHA to collectively solve rural health care problems. Merry Christmas and Happy New Year!

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special features

Quality of care as a strategic objective in ambulatory care*

Daniel K. Zismer, Ph.D.

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Much is said these days in the professional literature and at medical management conferences about quality of care and strategic planning.[1-4] An important question is whether quality of care should become a strategic objective for a medical group in today's marketplace.

If quality care is a worthwhile strategic objective it needs to be used in the marketplace to the advantage of the medical group. To do so, it must first be defined. Second, it must be assessed, and third, the results of that assessment must be translated into definable objectives that, if implemented, are likely to strengthen the market position of the group in a measurable way. Lastly, quality-related objectives require ongoing management.

While most people agree that quality sells in the marketplace,[5] skeptics contend that it can't be defined. Patients, however, define it each time they visit the office. They define it in terms of access, waiting time, personability and helpfulness of staff, physician behaviors, follow-up, process of care, referral availability, and outcome. In fact, even the skeptical physicians must define quality; rarely have I heard from a group of physicians that they rendered any less than high quality medical care, which, of course, implies some standard or method of evaluation.

Defining Quality of Care

For quality of care to become a strategic objective, it must first be defined. A model that has proven successful views quality of medical care as a multifactored construct consisting of at least these five factors:

■ **Technical competence:** It is assumed here and also by patients, that the professionals providing medical care are competent and qualified. This is one area of quality assurance that must remain in the hands of the professional. It is basic to the integrity of the medical practice and is a primary responsibility of the group.

■ **Professional practice style:** Often referred to as the "art of care," it is the one area that is often undervalued by the professional and overvalued by the patient. How services are delivered is often as important as the outcome, at least to the patient. It is important to fully understand the "amenities" of care patients find important to their quality of care assessment.

■ **Systems:** A group practice runs on a variety of systems: access, scheduling, referral, follow-up, etc. Failure to pay attention to the efficiency and responsiveness of these systems jeopardizes patient relations and quality of care and can, in some instances, expose the group to undo risk (e.g., failure to follow up on a critical positive laboratory finding).

■ **Patient behaviors and characteristics:** Even a brief review of the medical compliance literature reveals how important patient behaviors are in the quality equation. Without an effort to maximize patient participation, both the process and outcomes will be compromised.

■ **Efficiency of care:** Traditionally, medical professionals have focused on outcome at any cost. With more financial risk being shifted to the provider of care through a variety of health care financing arrangements, efficiency of care, i.e., value received for the dollar spent, is becoming increasingly important.[6] Moreover, most professionals would agree that it is not necessarily in the best interests of the patients to give them more services than they need. The key is not to withhold needed care, it is to eliminate unnecessary care. To do so requires systems and an inclination to scrutinize the process and outcome of care as well as variability of provider practice style.[7,8]

Measuring Quality

Once defined, the factors that comprise the quality of care construct need to be operationalized. That is, they must be described in such a way as to allow for measurement and monitoring over time. A research methods approach is most productive in operationalizing these factors. The first step in researching the group practice quality of care construct is through the formulation of research questions. A properly framed research question[9] will allow for the application of measurement methods, and ultimately, objective data for use in managing quality of care.

The scope of questions in need of answers is necessarily broad in scope to accommodate the multifac-

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tored construct described here. In fact, many of the questions to follow are also useful in assessing market-related issues as well. Quality of care assessment, in its broadest sense, does require an understanding of the market and the market position of a medical practice. Critical questions include:

- What are the demographics of our patient population?
- What is our service area?
- What is the case mix of the practice (including hospital use)?
- What is the payer mix of the practice?
- Why did our patients start with us and why do they stay?
- What are patients' perceptions, expectations, and opinions regarding specific physician and staff behaviors?
- How satisfied are patients with our systems of care?
- How do critical factors (e.g., physician and staff behaviors, services, systems, etc.) influence overall perceptions of quality, and how are perceptions of quality influenced by patient characteristics (e.g., payer type and demographics)?
- How do staff and physician opinions compare with patients'?
- What patient-stated problems are most prevalent?
- Under what circumstances would patients prefer to get their health care elsewhere?
- How do physicians compare (individually) on critical care delivery issues?

Once the research questions are clear, methods to ask them need to be devised. Typically, written surveys are used. Many practice-based surveys (e.g., patient satisfaction surveys), however, yield little of practical use for strategic decision making. This is not a condemnation of surveys, only of their application. A well done survey can provide valuable information with specificity sufficient to make critical quality of care decisions. The keys to success are clearly defined research questions, a well-designed survey, high-level analytic technique, and expert guidance in results interpretation.

Patient Surveys

Of all the surveys to be used in medical groups the most critical is the patient survey. A well done survey will efficiently yield a wealth of useful information. But it is important to make sure it's done right the first time. Typical mistakes made in patient surveys are:

- failure to formulate clear and measurable questions
- bad survey design
- poor sampling technique
- inadequate analysis
- poor surveying methodology (i.e., not determining the analytic approach beforehand)
- lack of willingness to take full advantage of the survey opportunity.

The last problem is most typical. Often surveys are objected to with the argument that "patients won't take the time" to answer a number of questions. Experience proves that they will, and many times they're pleased to do so.

One word of advice: office surveys can be far more cost effective and valuable than mail surveys. They are less expensive, they virtually eliminate a non-response bias, and they tend to produce more reliable information. (For more detailed survey methods information, see accompanying article on page 689.)

Formulating Quality-related Strategic Objectives

Assuming that the medical group has gathered quality-relevant data and has reliable results, the next step is to integrate those results into an overall strategic plan. The assumption is that a strategic plan exists. It is critical in today's marketplace and is the road map by which the group can best assure its journey into the future. Without a strategic plan a medical group can be assured that it will experience a crisis at some point. The question is how serious a crisis and what will be the consequences. One should not infer here that a strategic plan will prevent a crisis. It should, however, provide for an early warning system and contingency plan to minimize untoward effects while maximizing opportunities and can be a critical crisis management tool.

Presuming that a plan exists, how can quality of care objectives make a contribution to the success of that plan? Here, it is helpful to review a real-life example.

Example: A 12-person primary care medical group with two locations in a service area of 150,000 has determined that its mission as a group is to become positioned as a comprehensive regional primary care and triage center that is the "first place to call" for medical care. The group has internists, family practitioners, pediatricians, and ob/gyns on staff and has developed good working relationships with local surgeons and subspecialists at a secondary care center 40 miles away. The group is a provider to an HMO that now accounts for 25% of the practice. It receives a capitation rate for all primary and referral care and shares a portion of the institutional risk. With the HMO participation, the number of new patients to the practice is increasing at a steady rate. In fact, the average age of patients served is declining.

The group does not currently have a formal quality assurance or utilization review program, but it has decided to begin with the patient satisfaction survey. As a result of these surveys, the group finds that most patients are pleased with the services they receive, but there is strong evidence that points to these potentially problematic situations:

- patients not being able to get appointments in a reasonable amount of time for routine and preventive care;
- HMO members feeling that access

to specialists is restrictive;

- reported instances of support staff violating confidential patient information in the community;
- two physicians rating considerably lower than the group norm on issues regarding "visit follow-up" (e.g., lab tests) and "personalization of care";
- inability to find appointments for urgent situations (walk-ins) resulting in physician referral to emergency rooms with some frequency.

Presuming that these problem areas are confirmed (a product of data analysis), the group as a whole must consider them in light of their defined mission.

Armed with this information the group can begin to formulate quality-related strategic objectives. The problems cited above provide opportunities to address art of care, systems, patient behaviors, and efficiency of care issues. Objectives would include:

- better appointment availability for routine care;
- systems to accommodate more urgent visits in the office;
- improved trust between staff and patients;
- improved efficiencies of care, especially relating to HMO patients and emergency room use.

Further analysis of patient-generated data indicates differences in how physician behaviors influence overall patient perceptions of quality of care. For HMO patients the most important factor is "the referral process from one doctor to another" (i.e., to specialists). For younger fee-for-service patients (i.e., under 40 years old), it's whether the physician "listens to me during my visit." Although these findings do not imply that HMO patients should be treated differently from fee-for-service patients, they do show that factors, seemingly invisible to the physician, do influence patient perceptions and expectations of the physician visit.

Knowing the results, the physicians of the example group determine that they should be mindful of these differences and make sure that they communicate effectively with both types of patients, being sensitive to these somewhat disparate expectations.

Managing Quality Strategic Objectives

All strategic objectives should directly serve the mission of the group in ways that are demonstrative and measurable. Quality-related strategic objectives are no different. Once identified, each objective must be operationalized in a form that guides specific actions and behaviors. In our example group the target objectives are operationalized as follows:

- Standards of care are developed pertaining to the most frequent types of routine and preventive care appointments. Incorporated into these standards are "acceptable" waiting times for the patient. (Acceptability here is defined in terms of patient expectation and good clinical practice.) Systems are devised to sample and measure compliance with these standards on a regular basis, with results reported to the clinic's Executive Committee.
- A system is developed (including a nurse triage system) to accommodate more "urgent" visits in the office. Physicians develop systems to see their own HMO patients when they're in the emergency room

Surveying patients in a medical practice

Where do I begin?

Daniel K. Zismer, Ph.D.

There is nothing particularly innovative about the concept of surveying patients for their opinions, perceptions, and suggestions regarding their physician or clinic, but one could confidently wager that most physicians or clinics have not done so. Their reasons range from lack of time to lack of incentive. Plus, a few physicians see no need to survey patients because they are already convinced that they know what their patients want. But if clairvoyance isn't your long suit and you are concerned about how you can better serve your patients and thereby better serve yourself, then the best way to find out what patients think is to ask them, and one of the most effective ways to do that is via in-office, paper-pencil surveys.

Before launching an office-based survey, these three basic questions need to be addressed:

- What do I need to know?
- How do I expect to use the information?
- How critical is the information?

Although the first question may seem obvious, you do have two basic options with a survey. You can cast about generally and try to cover a waterfront of areas, or you can focus in on specific hypotheses (e.g., "my patients want extended hours" or "health education services would be well received").

Next, an understanding of how the information will be used is important. Finding general peace of mind is purpose different from determining whether a new service should be developed; and third, by determining how critical the information is you can better gauge the scope and level of competence required for technical design and analyses. If, for example, the survey results are to be used to determine

Patient Surveys cont. on p. 711

as much as possible.

- A patient relations program is developed to regain patients' confidence and trust. Staff participates in a special training program. Patient confidentiality policy and procedures become part of performance appraisal system.
- A peer review program is developed consisting of a special monthly committee meeting. The focus is on variability of provider practice style as it relates to the most frequently treated diagnoses and conditions. Both process and outcome issues are evaluated regularly on a physician-by-physician basis where art of care and cost of care are also evaluated.
- A physician education session is held to inform physicians how patient expectations and perceptions of care differ as a function of payer type.
- A plan to evolve the clinic's information management system is initiated to eventually allow for better reporting of the outcomes and costs of care.

Once objectives exist they need regular monitoring and evaluation. The group needs to become accustomed to managing identified quality objectives. Ideally, the managing physician and group administrator will become closely involved in this management process. Regular updates need to be made available to the group, including physician-by-physician comparisons. Satisfaction surveys are administered to patients at six-month intervals to determine whether progress is being made toward strategic objectives. Because physicians in the group need to receive regular updates, progress reports need to be a regular agenda item at executive meetings.

The Tangible Results

Quality assurance programs, especially those in ambulatory care settings, are often viewed as offering little of tangible benefit to the practice. Under the model proposed here a well-managed strategic plan that includes quality of care issues can provide an economic and market advantage for the group.

Presuming that our example group does follow through and successfully achieves its quality-related strategic objectives, it can look forward to being viewed as a trustworthy responsive group that pays attention to the individual needs of its patients. Further, through effective resource utilization management, it should realize better return on its prepaid risk contracts and better operating efficiencies overall by eliminating waste and minimizing unnecessary service (e.g., excessive emergency room use).

The model group of the future can look forward to increased competition, more financial risk sharing, decreased economic margins, and a more demanding customer. To remain successful it needs to be sensitive to the market, be savvy in health care financing options, and have a willingness and ability to make decisions quickly. Quality of care will remain an important factor in this equation for success and must be viewed as a critical strategic objective and managed as judiciously as any other asset of the practice.

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The Health Care Quality Improvement Act of 1986

New Benefits and Burdens for Physicians

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Physicians have witnessed increasing congressional concern over the rising cost of health care throughout the last decade. In 1983 Congress replaced Medicare's cost-based reimbursement system with the Prospective Payment System. Physician fee schedules have been frozen under Medicare, and private payers have been encouraged to discount physician fees or introduce capitated reimbursement systems.

A renewed interest in the quality of medical care is one result of this heavy emphasis on cost control and the inevitable reduction in the use of health care services. Congress has recognized that meaningful peer review is an effective method of improving the quality of medical care. In 1986 Congress enacted the Health Care Quality Improvement Act, Public Law 99-660 (the Act). The stated purpose of this new legislation is to "improve the quality of medical care by encouraging physicians to identify and discipline other physicians who are incompetent or who engage in unprofessional behavior." In order to accomplish this goal, the Congressional Committee believed it was "essential to provide some legal immunity to doctors and hospitals that engage in peer review activities." This immunity is needed due to the apparent tendency of physicians who are the subject of unfavorable reviews to file multimillion dollar lawsuits against physicians who participate in or are members of peer review committees.

The Act creates new benefits and burdens for physicians. On the benefits side, the Act provides limited immunity from monetary liability for physicians who participate in peer review activities. In exchange for this immunity, hospitals and other health care entities are required to report malpractice claims and peer review activities to state licensing boards and a national data bank created by the Secretary of Health and Human Services (the Secretary). This comprehensive national reporting system will be accessible to state licensing boards throughout the nation, as well as hospitals, health maintenance organizations, preferred provider organizations, and other "health care entities." The Congressional Committee believes this reporting system will "virtually end the ability of incompetent doctors to skip from one jurisdiction to another."

The Act became effective with respect to federal claims on November 14, 1986. Immunity under state law will not be available until October 14, 1989, unless a state, by legislation, elects to "opt-in" to immunity at an earlier date. States may also "opt-out" of the immunity provisions with respect to claims brought under state laws. The Secretary is in the process of preparing implementing regulations, which are expected to be published sometime before the end of the year. Although the new law is technically in effect, most providers are awaiting the issuance of federal regulations before they begin to implement the Act's requirements.

Immunity from Liability

The Act provides immunity from money damages for "professional review actions" taken by "professional review bodies." The Act applies only to physician peer review. A physician is defined as a doctor of medicine, osteopathy, or dentistry. The persons entitled to immunity include the "professional review body," its members or staff, persons under contract with the review body, and persons who participate in or assist with the review. A professional review body includes a hospital, HMO, group medical practice, professional society, or other health care entity that follows a formal peer review process.

A professional review action includes any action to determine or modify the existence, scope, or conditions of clinical privileges or membership, if such action is based on the competence or professional conduct of a physician *and* adversely affects his or her clinical privileges or membership. This includes disciplinary action of current staff members as well as the initial granting or denial of clinical privileges.

Only the review of conduct related to the physician's competence or professional conduct is eligible for immunity. Peer review action is not protected if it is primarily based on:

1. A physician's association, or lack of association, with a professional society or association;
2. A physician's fees or the physician's advertising or engaging in other competitive acts to solicit or retain business;

3. A physician's participation in prepaid group health plans, salaried employment, or any other manner of delivering health services whether on a fee-for-service or other basis;

4. A physician's association with, supervision of, delegation of authority to, support for, training of, or participation in a private group practice with a member or members of a particular class of health care practitioner or professional; and

5. Any other matter that does not relate to the competence or professional conduct of a physician.

Congress established several conditions that peer review committees must satisfy before immunity is available. In order to qualify for immunity, a professional review action must be taken:

1. In the reasonable belief that the action was in furtherance of the quality of health care;

2. After a reasonable effort to obtain the facts of the matter;

3. After adequate notice and hearing procedures are afforded to the physician involved or after such other procedures as are fair to the physician under the circumstances; and

4. In the reasonable belief that the action was warranted by the facts known after such reasonable effort to obtain facts and after meeting the notice and hearing requirements.

The "adequate notice and hearing" requirements are extensive and may exceed the current requirements and procedures used by many hospitals, HMOs, and other health care entities using peer review procedures. A physician must be provided with written notice that a review action has been proposed, the reasons for the proposed action, and the right of the physician to a hearing. If a hearing is requested, the physician must receive notice of the time, date, and place not less than 30 days before the hearing and a list of the witnesses expected to testify against the physician. The hearing must be held before a mutually acceptable arbitrator, a hearing examiner who is not in competition with the physician, or a panel of individuals who are not in competition with the physician. The hearing must incorporate the full panoply of usual due process rights including the right to be represented by an attorney, to have a written record, to call and examine witnesses, to present evidence, and to have a written decision stating the basis for the decision. Although these requirements are comprehensive, the professional review body is *presumed* to have satisfied the notice and hearing requirements unless proven otherwise. In addition, these requirements are not required where immediate action must be taken to prevent "imminent danger to the health of any individual."

Although the Act provides new protections for physicians participating in peer review, there are several substantial limitations on that protection. First, the immunity provisions apply only to private actions and do not affect the enforcement powers of government agencies. Second, the Act does not in any way affect the right of a patient to file a malpractice claim. Thus, although peer review participants are immune from the dangers of a lawsuit filed by a physician, this immunity does not extend to a lawsuit filed by a patient against a peer review committee that failed to take action against an incompetent physician. Third, the Act provides no protection for claims for injunctive or declaratory relief. Fourth, the immunity provisions do not apply to actions brought under state or federal civil rights laws. As a result, the Act provides no immunity from claims of race- or sex-based discrimination. Finally, the Act makes compliance with its reporting requirements a condition of immunity. A peer review body that fails to comply with the reporting requirements will not be entitled to immunity for three years.

Reporting Requirements

The Act establishes two separate reporting requirements. Any "health care entity" that takes peer review action adversely affecting a physician's clinical privileges for a period longer than 30 days, or that accepts a surrender of clinical privileges during an investigation or in return for not conducting an investigation of the physician's conduct, must report such action to the national data bank. The reporting of a voluntary surrender of privileges ensures that "plea bargains," wherein a physician surrenders his or her privileges in exchange for a promise not to inform other health care entities of his or her conduct, are included in the national clearinghouse. The name of the physician and a description of the alleged acts or omissions must be reported.

The second reporting requirement focuses on malpractice claims. The Act requires that insurers and other entities report payments made in settlement or satisfaction of malpractice claims to the national data bank. This includes any provider such as hospitals, HMOs, home health agencies, or group medical practices, whether self-insured or insured under commercial liability policies. Information that must be reported includes the name of the health care practitioner for whose benefit the payment is made, the amount of the payment, the name of the hospital with which the health care practitioner is associated, a description of the alleged acts or omissions and any resulting injuries or illnesses, and any other information the Secretary deems appropriate. Failure to report the required information will subject the insurer or other entity to a fine of up to $10,000 for each payment not reported.

This section of the Act has been criticized for neglecting to provide a "floor" below which small malpractice claims need not be reported. The absence of a cut-off point means that the payment of "nuisance value" claims will be included in the national clearinghouse system. Congress apparently decided against exempting small claims due to the difficulty of establishing an appropriate cut-off point and because Congress believed that a significant number of small payments may indicate that the underlying claims are truly meritorious. Recognizing that the benefits of small claim reporting may be exceeded by the cost of processing such claims, Congress has asked the Secretary to undertake a two-year study to determine the advisability of small claims reporting.

The final reporting requirement applies only to hospitals. A hospital is obligated to request information from the Secretary when a physician or other licensed health care practitioner applies for clinical privileges. Thereafter, the hospital must request information every two years on physicians who have been granted clinical privileges. If a hospital fails to request such information, the hospital will be presumed, for purposes of a medical malpractice action to have knowledge of any information reported to the Secretary with respect to the physician. This section creates a new basis of liability on the part of a hospital. Consequently, hospitals may wish to develop standard procedures for requesting and documenting requests for information reported to the Secretary.

There are a number of other steps that peer review bodies should consider in order to ensure the availability of immunity. For example, peer review procedures should be reviewed in order to determine whether they comply with the Act's notice and hearing requirements. New procedures should be established to ensure the timely and accurate reporting of adverse professional review actions or the payment of malpractice settlements or judgments to the national clearinghouse. In addition, physician organizations may wish to consider lobbying the Minnesota Legislature to opt-in to the immunity provisions for state law claims prior to October 14, 1989.

> *"Notwithstanding this confidential label, a wide variety of people and organizations will have access to this system."*

Confidentiality of Peer Review Data

The Act provides that the data collected by the new clearinghouse will be considered "confidential." Notwithstanding this confidential label, a wide variety of people and organizations will have access to this system. The Public Health Service recently published notification that the new system will be accessible to different types of users. The information contained in the clearinghouse will be accessible to a physician who is the subject of a report and to hospitals for use in their credentialing process. Any other "health care entity" that follows a formal peer review process will be allowed access, as will state licensing boards, federal entities employing physicians, and the Department of Justice. Attorneys who have filed a malpractice action or claim on behalf of a client will also have access to all peer review and malpractice data.

The disclosure of peer review information to an attorney who has filed a malpractice claim for use in malpractice litigation may be contrary to current Minnesota state law. Since 1971 Minnesota law has prohibited the discovery of peer review data in any malpractice action against a physician. Although this statute will continue to be in effect with respect to a peer review organization, a plaintiff's attorney may be able to circumvent the state law by making a request of the national data bank. Because the peer review committee must report its activities to the clearinghouse, the plaintiff's attorney may have access to this data through the national data bank. This may allow the plaintiff's attorney to proceed with "fishing expeditions" previously prohibited by state law.

Summary

The Health Care Quality Improvement Act provides new benefits and imposes new burdens on physicians participating in peer review. Minnesota state law previously accorded state law immunity to persons participating in peer review activities. Under the Act, physicians participating in peer review will have additional immunity under federal law. The reporting and disclosure obligations are the *quid pro quo* for this new immunity. Only time will tell whether the establishment of a national data bank of peer review data and the provision of new immunity significantly improves the quality of medical care.

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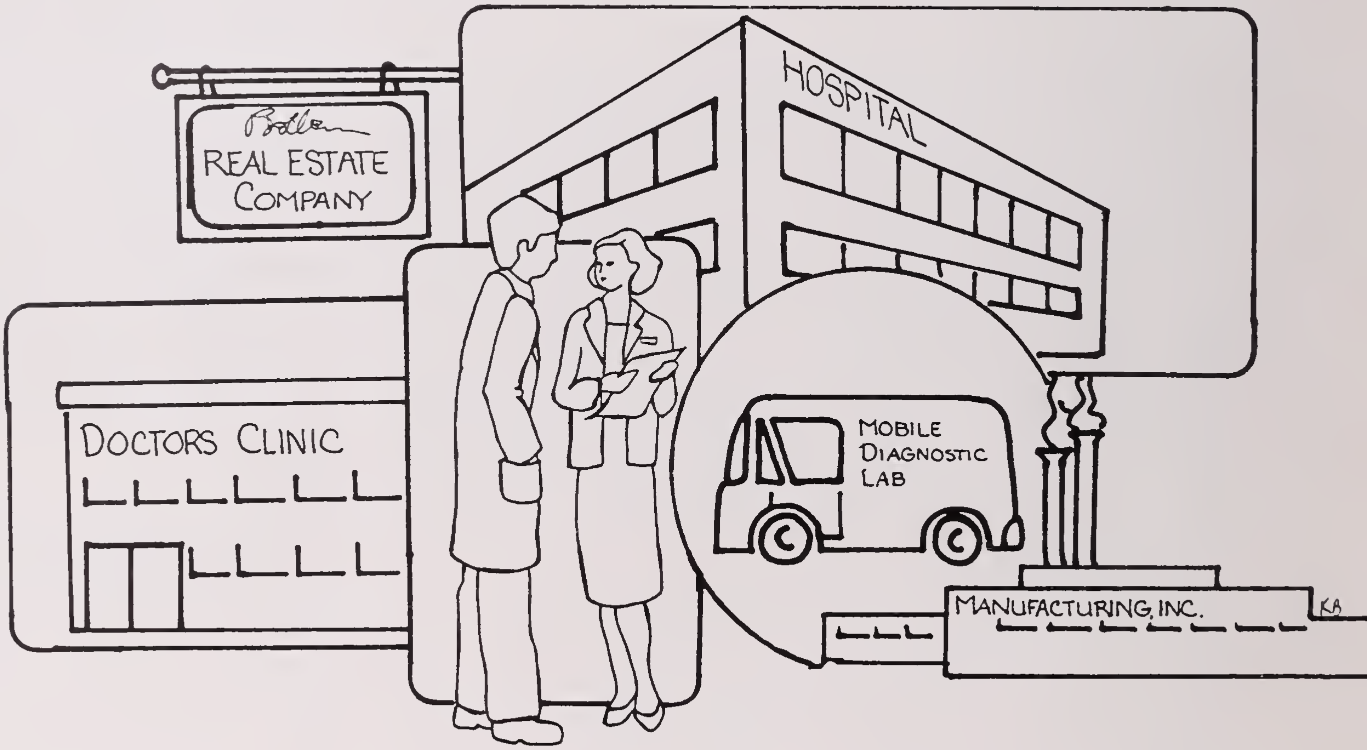

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The Northern Lakes Health Care Consortium Quality Assurance Network

C.M. Falk* and Terence Hill†

After years of submission to standards set by the JCHA, HCFA, Medicaid, HMOs, etc., etc., a consortium of physicians and hospital administrators in Northeastern Minnesota has decided to establish a few standards of its own.

The Northern Lakes Health Care Consortium, a regional association of Northeast Minnesota hospitals and medical clinics, has created its own quality assurance network — the first of its kind in the country.

"The quality issue has returned to medicine, and appropriately so," states consortium president Raymond Christensen, M.D., a family practitioner from Gateway Clinic in Moose Lake, Minnesota. "Because quality has become such a major issue locally, we thought it would be a benefit to approach the problems from a regional perspective and share the task of defining quality standards."

This seemed like a perfect job for our Northern Lakes Consortium, which now includes 21 hospitals and about 175 physicians, said William Zellman, administrator of Mercy Hospital in Moose Lake. Thus, Zellman met with consortium executive director, Terence Hill, to elicit support and to develop a workplan for network implementation.

"One of the major roles the consortium plays in Northeastern Minnesota is that of a catalyst," explains Hill. "I think it is one of the things we do best. We can facilitate a cooperative approach to issues and problems that usually result in increased cost-efficiency for our members. I also see us as a fundraiser, bringing money into the region so that we can obtain the resources necessary to develop regional systems. Then it becomes a process of systematically assessing needs; providing staff support, group facilitation, and information; and designing a process for making sure the project happens."

In April 1987, the Northern Lakes Consortium Board appointed a small working task force to assess needs and problems. Serving as co-chair, along with Zellman, was Debbie Kempi, RRA, quality assurance coordinator for Mercy Hospital.

"I agreed to serve as co-chair of the task force," says Kempi, "primarily because it was felt that it was important to have the chair be a quality assurance person from a small, rural hospital as opposed to one from the urban centers. We have our own unique problems in rural Minnesota that do not fit comfortably within urban models.

"Within any organization there has to be a meeting of the minds between the quality assurance personnel and administration, medical staff, and all those ancillary service department heads," she said. "The network is going to be a way of communicating, not only internally within our hospitals, but also between hospitals in the region as well."

After a highly successful kick-off meeting on July 15, 1987, which confirmed the interest and support of all the hospitals in the region, a formal steering committee was established with pathologist Thomas Stolee of Miller Dwan Medical Center (Duluth), as chair.

The Steering Committee has since recommended an organizational structure that would be governed by an equal number of hospital administrators and physicians; established a quality assurance coordinator committee that is already sharing quality assurance job descriptions, procedural manuals, and developmental approaches; and solicited information from computer vendors to facilitate purchase of quality assurance sytstem software and hardware.

The scope of the new network includes not only medical procedures, but virtually everything that's done in an institution. "What we are developing are function methods," states Stolee. "As far as the functions are concerned, quality assurance within the different hospitals is a very personal matter. Looking at quality assurance is looking at organizational problems. We are not trying to make decisions for other hospitals. What we are trying to do is give them the tools and the methodology that can be applied internally."

Health care facilities participating in the network are expected to give as well as receive information. "This involves the sharing of ideas, as well as comparisons of types of things that are done," explains Stolee. "Like one hospital saying to another, 'This is how we do, say dietary functions, but we have some problems. How do you handle it?' Many of them have the same problems. We'd like to lead the way for other people so that everybody can do their own jobs to the best of their abilities."

Physician participation in the quality assurance system development has been extensive, but Christensen of Moose Lake, has some concerns about overall physician support for the concept. "I have a feeling that many of the physicians in Northeastern Minnesota are not real anxious to embrace another endeavor," admits Christensen. "With all the recent changes, we're frankly a bit overwhelmed already. But, quality assurance is a fact of life. Now we are forced to be evaluated, and I think you'll find that probably HCFA and others are inching toward criteria of physician evaluation, not just on signed charts, but patient satisfaction and the rest. If that's coming down, I think it behooves us all, whether we're in the consortium or otherwise, to have physicians making the decisions."

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†Executive director, Northern Lakes Health Care Consortiums; and president, Minnesota Public Health Association.

Stolee is also adamant in his position.

"I am absolutely convinced that if we, as physicians, are to maintain control over health care delivery and thus provide the best services possible for our patients, we are the ones who are going to have to buckle down and take this quality assurance business seriously and devote our best efforts to it. We must be the ones who answer society's complaints about cost of quality health care and the like. We are the ones in organized medicine that must develop mechanisms for cost control and quality assurance."

Defining quality is another problem the network faces. "Obviously, when you talk about quality in medicine, you can't expect an administrator or health care planner, or some federal bureaucrat to define quality," argues Stolee. "He or she hasn't been trained for that. We, as physicians, have to take a little time and go through this tedious task of defining quality, or, at least the limits of quality. If we don't, someone else is going to do it."

So far, the network has received positive reactions from health care providers in the region. "I think we've encountered overwhelming support for the concept and a great deal of enthusiam for a cooperative approach to quality assurance," states the consortium's Terry Hill. "We've had no problem getting people to participate."

Stolee summarizes the situation like this: "One of the blessings that we have in Northeastern Minnesota is that we have a whole parcel of truly dedicated, hardworking people in these little hospitals. We haven't had to go out and sell real heavily. All the hospitals have the need. Here's something that they not only have to do, but they want to do, and they want to do the best job possible."

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Computerization of a chemical dependency assessment

Richard V. Anderson, D.Min.P.C.C. *

We assessed 112 patients with an average age of 31.1 years for chemical dependency using a computerized version of test administration. All persons were double-tested with a paper-and-pencil version of four chemical dependency tests and a computerized version of the tests. Test results revealed a mean change of -.48 points between the traditional written MMPI MacAndrews Scale and the computerized version of the MacAndrews questions. These results were statistically significant at $t = 2.32$ ($p < .05$), indicating the computer administration of the MacAndrews Scale is associated with slightly lower test scores. Clinically, therapeutic benefits of computer use were found to enhance assessment for chemical dependency as well as improve the doctor-patient and counselor-patient relationship.

Diagnosing alcoholism is a difficult and serious medical task. Most physicians refer their patients to a chemical dependency treatment center or counselor for a thorough evaluation and diagnosis. The responsibility of that counselor or center to develop an accurate and complete diagnosis can be difficult when assessing those patients unwilling to consider that their drinking may have become a disease. Accurate diagnosis of the disease is critical in working with these patients and in initiating therapy at the treatment center.

After evaluating the process being used for chemical dependency assessment in our treatment center at Memorial Hospital, Cambridge, Minnesota, I determined that a more thorough method was needed to make an accurate diagnosis. Before the evaluation, the Jellinek screening test, coupled with the Minnesota Multiphasic Personality Inventory (MMPI) and one counselor interview, produced the data used in making a diagnosis. I decided that a broader assessment process would give a greater reliability of test scores and that a standardized method would afford better clinical acceptance of our determinations.

As a result of the decision to expand the assessment process, other interviews and screening tests were added to the battery of data collected on each patient. Patients now take the Minnesota Multiphasic Personality Inventory that screens for psychiatric complications and gives the MacAndrews Alcoholism Scale.[1] Patients take the 67-question Jellinek Alcoholism Questionnaire,[2] the Michigan Alcoholism Screening Test[3] developed by Dr. Melvin Selzer, and the Alcohol Use Profile[4] developed by Dr. Norris Hystad. Each client is given the Shipley Hartford to gather a conceptual quotient and an intelligence quotient. Also, two personal interviews with different counselors gather data about the patient from varied perspectives, often providing a more comprehensive picture of that individual. A final diagnosis is reached through a staff meeting that involves a psychologist, a member of the clergy, a chemical dependency counselor, a codependency counselor, and the author as program director. I assumed that the broader the variety of screening tests administered to a patient, the more comprehensive a drinking history we could attain, and therefore, a more accurate diagnosis.

With clients taking four chemical dependency screens, the MMPI, and the Shipley Hartford, test correction and scoring became a burdensome task. To minimize scoring time and increase scoring accuracy, a computer program was written that administers, scores, and prints the results of the chemical dependency screening tests. Patients are presented with the test questions on the computer screen and enter their answers by use of the computer keyboard. The results of computerization of these tests produced findings not anticipated when the project was begun.

In creating our computer program, a file system program was written in Dos 3.3 Apple Soft Basic language. An Apple IIe computer with an extended 80 column card, dual disk drives, and printer were used in developing the program and are currently used in patient test administration. After the patient answers the questions by use of the computer keyboard, the computer corrects and stores the corrected tests in the disk memory for access by the counselor at a later time. To ensure confidentiality, access to the test results is by a code known only to the center's staff.

Methods

A study of the accuracy of computerized test administration was done between March 1, 1984, and November 1, 1984, at Memorial

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Hospital in Cambridge, Minnesota. A total of 112 persons presenting themselves to the chemical dependency treatment center for assessment were given the complete screening process. No test results were given to the patient until he or she met with a counselor for an individual interview.

The study sample consisted of 81 males and 31 females whose average age was 31.1 years with a standard deviation of 12.2 years. The largest portion of the population (33.9%; N=88) was 20-29 years old. The next largest group (23.2%; N=26) was 30-39 years old

Results

Forty-five persons (40.2%) had all six tests scores positive for chemical dependency, 18 (16.1%) had five tests positive, and 28 (25.1%) had four tests positive. Overall, 81.04% scored positive on four or more tests for chemical dependency.

To examine self-rated dependency, patients were asked the question, "Are you chemically dependent or alcoholic?" Sixty-four (57.1%) persons said no, and 48 (42.9%) said yes. This level of perception or admission of one's diseases was surprising. Considering the degree of denial that most alcoholics live with, our expectation was that about 90% of the subjects would respond with a 'no' answer.

Information gathered in the study evaluated double-test discrepancies between the paper-and-pencil Jellinek test and the computerized Jellinek test. The computer-administered version presented a two-point lower average score than the written version, with a 30.5 point test score average. The cutting score of 10 points for either the written or computer version of the test found 91.9% of the study population could be labeled alcoholic. Comparison studies of agreement for a diagnostic determination across the four tests found 81.4% of the Jellinek scores to be within ± 2 points.

The MacAndrews Alcoholism Scale was also double-tested and showed the computer version of direct serial presentation of the 49 questions to differ from the written 566-question version of the test by only .48 points when all test scores of the sample were averaged. For this sample, the average MacAndrews score on the computer was 24.40, and the written version average was 24.88 points. Comparison of the computer and written MacAndrews scores showed the results to be relatively stable across the two forms of administration. The mean change of -.48 between the two administrations was statistically significant at $t=2.32$ ($p<.05$), indicating that the computer administration of the scale was associated with lower test scores.

Discussion

Interesting findings have been discovered from computerizing these chemical dependency screening tests. Contrary to expectations, patients showed virtually no resistance to test administration on the computer. The majority of patients reacted with interest and curiosity about using a computer. No one able to read was unable to complete a significant administration of the computer version. Most patients liked the impersonal, confidential, unbiased objectivity of the computerized tests. The image of "high tech" diagnostic equipment in a hospital added greater clinical sophistication and an apparent credibility to the assessment process. Many patients trusted the computer method and were willing to be honest in their approach to the test taking. When asked about this method of testing, no one in our population thought the computer administration was an unacceptable method of test presentation and scoring.

Initial staff concern about depersonalization of the assessment process did not develop due to our comprehensive process of assessment involving personal interviews coupled with the testing instruments. Although the computer test results give an accurate and efficient method of test administration and scoring, the computer does not provide a comprehensive diagnostic determination. Attempts to use computerized test scores as the only data in diagnosis risks misdiagnosis and depersonalization of the assessment process.

The computerization of our screening tests in this study has proven to be clinically reliable and cost effective. It has also made unpredictable changes in the role of the chemical dependency counselor. Two significant results appear to have made the therapeutic process of intervention and treatment more effective.

Each patient in this study was seen for an individual counseling session after completing all of the testing. The patient was given a structured psychological social interview designed to gather information about chemical use. To conclude the interview, the client was asked: "Do you think you are an alcoholic/chemically dependent?" The patient's verbatim response was recorded and made a part of the data collected. Next, the printed computer page of test results was given to the patient who was then asked the question: "What is your reaction to these results?" Again the verbatim response was recorded for the data of this study. Fifty-seven percent of the test population stated they did not think that they were chemically dependent or alcoholic. This same group gave a neutral or positive reaction in 86.8% of the cases after viewing their computerized test results. A typical reaction was something like "I didn't think it was a problem, but it must be, these tests sure say I have a problem."

An important element in making a therapeutically effective diagnosis is helping the patient to understand the diagnosis and accept the fact that he or she has a progressive disease. A thorough and accurate diagnosis will not benefit the patient who continues to deny this fact and does not follow the physician's recommendations for therapy. Computerization of the tests provides the counselor and physician with a computer-printed, clinically sophisticated, and highly effective tool to use in persuading the patient of the accuracy of the diagnosis and the need for therapy. Printed test scores with diagnostic determinations can be a valuable part of the patient record when follow-up visits are made. They offer the physician clinical data to support the physician's recommendation of therapy, and they can be helpful when consulting with the patient during or after his or her chemical dependency treatment.

In our hospital setting, where the diagnostic workup is completed, the chemical dependency counselor has the computer-printed test results available when discussing the conclusions of the assessment with the patient. The counselor no longer is placed in the role of an adversary who confronts the patient with the diagnosis of "alcoholic." Instead, the counselor can experience a role reversal in which the computer tells the patient that he or she is "alcoholic," and the counselor is present as an ally to assist the client in understanding and accepting the disease.

It is noteworthy that the patient's ability to dispute or discredit the results of the testing process has been markedly diminished. Often an alcoholic patient will argue with a counselor in an attempt to change the counselor's mind. A patient will discount the conclusions a counselor has reached in an attempt to maintain denial of the disease. The patients in this assessment project found it difficult to impossible to argue with the results of the computer or attempt to change the computer's mind. When the patient enters the answers into the computer and the results are forthcoming without alteration by anyone else, the patient knows he or she must take responsibility for his or her actions at the keyboard. No one in our study attempted to discount the accuracy or objectivity of our diagnostic instrument. A similar reaction is expected in a clinic setting when testing is done at the physician's request.

Summary

Therapeutically, the rapport between counselor and patient is enhanced through the use of computer assessment. Defensive resistance by the patient is avoided when the patient initially perceives the counselor as an ally to help the patient understand his or her disease. Initiating the therapeutic relationship at this level has benefits throughout the treatment process.

More study and work are needed in this new area of clinical diagnosis and testing. Currently, it is possible to gather clinically sound test results processed efficiently on the computer. Therapeutic benefits for the patient have been discovered that can aid the physician and counselor in working with alcoholic denial. Effectively convincing the patient of the diagnosis and the need for treatment is a major step in initiating intervention into this progressive disease. Other benefits to the treatment and therapy of alcoholism and chemical dependency are sure to be discovered with continued use of computer technology.

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rheumatology corner

Quackery in arthritis

Joseph Duffy, M.D.

People with chronic, debilitating diseases are the prey of unscrupulous practitioners. Arthritis sufferers are no exception. In spite of the sophisticated, high-tech medicine of the 1980s, quack remedies aimed at those with arthritis still abound. It is estimated that 90% of patients with significant arthritis try at least one worthless treatment at some time. More than one billion dollars each year are wasted on drugs, diets, and devices of unproven value.[1] Why is quackery still alive and well? Primarily because of ignorance.

A recent study of a large metropolitan area provided insight into the prevalence and depth of the ignorance about arthritis and how it's related to quackery. A 1982 survey of residents in Toledo, Ohio, probed the public perceptions and misperceptions of arthritis. Those surveyed reported that knowledge about arthritis most frequently came from television and the print media; physicians and the Arthritis Foundation fared poorly as authoritative sources of information. Almost half of the respondents took it for granted that those afflicted with arthritis would be crippled. Surprisingly, less than one-quarter of study participants could identify osteoarthritis and rheumatoid arthritis as the two major types; this was true regardless of educational background. Approximately half the respondents held to the age-old myths that arthritis can be caused by poor diet or a cold and wet climate. The most distressing results came from inquiries about selected treatments. Unproven therapy and outright quackery rated high. Bee venom (83%), vitamins (76%), copper bracelets (74%), special diets (57%), and DMSO (54%) were considered effective by at least half of those questioned.

Such ignorance exacts a heavy toll. Delays in diagnosis and correct treatment can result in joint damage and disability that could have been minimized or prevented. Money diverted away from accepted treatments and well-designed research and into the hands of the unscrupulous is wasted. False hopes for simple and immediate solutions are raised but eventually give way to discouragement, despair, and distrust of competent physicians and associated health professionals when the promised cure is not realized.

Physicians practicing in the United States are keenly aware of clinics that have sprung up along the U.S.-Mexican border. They attract untold numbers of patients from the United States and Canada each year. Patients are given cursory examinations and receive treatment with drugs whose contents are misrepresented. Patients commonly report the miraculous effects of DMSO that allegedly was administered intravenously at one of these clinics. Careful questioning, however, reveals the absence of the characteristic odor and taste of DMSO which cannot be masked or eliminated, thus verifying indirectly that DMSO was not administered.[3]

Drugs provided for outpatient treatment following clinic dismissal usually contain a form of corticosteroid despite claims to the contrary by the prescribing physician. Analyses at several reputable laboratories and institutions in the United States and Canada have provided ample confirmation.[3,4] Undisclosed nonsteroidal anti-inflammatory drugs such as phenylbutazone, when unsupervised, have caused life-threatening side effects such as agranulocytosis and toxic hepatitis.[5] Hundreds of dollars are paid for these drugs which cost only a fraction of their purchase price in this country.[3,4] Numerous other drugs beyond the scope of this article, such as tranquilizers, also pose serious problems. Compounding the hazards of the Mexican treatments is the reluctance or failure of many patients to inform their local physicians of their trips to border clinics, thus creating the opportunity for additional complications caused by duplication or interactions of medications prescribed at home.

It can be concluded that the public is poorly informed about almost every aspect of arthritis. Although quackery will never be eliminated, it needs to be on every physician's "hit list" with more and better education of patients and public alike.

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[*] Internal Medicine, Division of Rheumatology, Mayo Clinic, Rochester, MN

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

* WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: **Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired**. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K^+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K^+ intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy**. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

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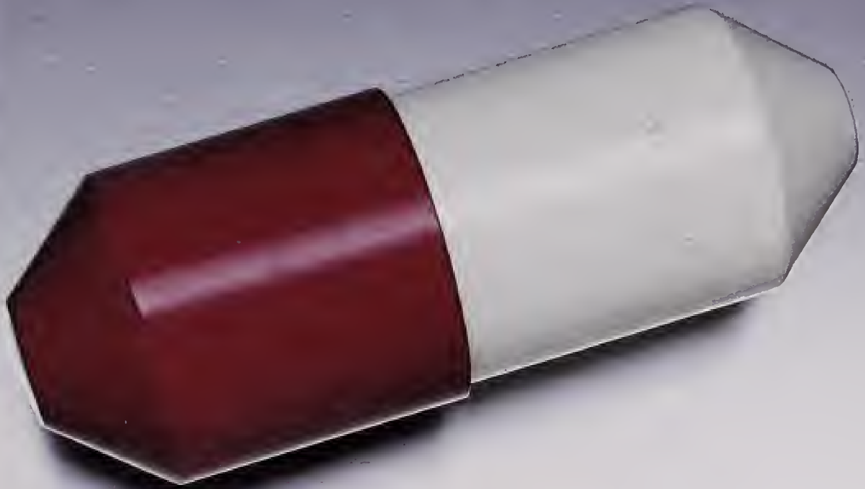

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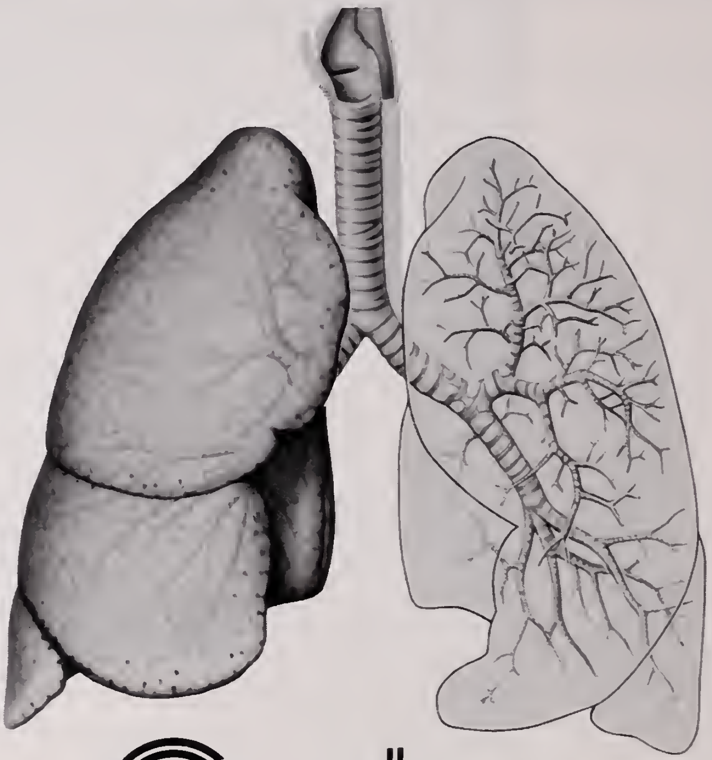

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Haemophilus influenzae and *Streptococcus pneumoniae*
(ampicillin-susceptible and ampicillin-resistant)

Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

Ceclor® (cefaclor)

Summary. Consult the package literature for prescribing information.

Indication: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β-hemolytic streptococci).

Contraindication:
Known allergy to cephalosporins.

Warnings:
CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:
- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:
- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, and serum-sickness-like reactions that have included erythema multiforme [rarely, Stevens-Johnson syndrome] or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever): 1.5%; usually subside within a few days after cessation of therapy. Serum-sickness-like reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.
- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%; and, rarely, thrombocytopenia.

Abnormalities in laboratory results of uncertain etiology
- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children).
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly). [061787L]

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"Living in the city
is lonely enough...
with herpes it's like
solitary confinement."

ZOVIRAX®
(acyclovir)
CAPSULES

Prevent genital herpes recurrences month after month with daily therapy.

(In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.)

Please see last page of this advertisement for brief summary of prescribing information.

ZOVIRAX®
(acyclovir)
CAPSULES

Help free your patients from recurrences.

Daily therapy

Coping with genital herpes is rarely easy. For some, the worst part is the pain and discomfort of frequent attacks — month after month, year after year. For others, the emotional burden presents a more difficult problem, leading to social isolation, anxiety, and diminished self-esteem.

Prevent or reduce recurrences

Although your patients have to live with herpes, they shouldn't have to suffer. Daily therapy with ZOVIRAX CAPSULES can help free them from the cycle of recurrent genital herpes. For many, one capsule three times a day can suppress recurrences completely while on therapy.

Generally well tolerated

Daily therapy with ZOVIRAX CAPSULES is generally well tolerated. The most frequent adverse reactions reported during clinical trials were headache, diarrhea, nausea/vomiting, vertigo, and arthralgia.

The physical and emotional difficulties posed by genital herpes are unique for each patient. The frequency and severity of recurrent episodes, as well as the emotional impact of the disease, should be considered when selecting daily therapy with ZOVIRAX CAPSULES.

Please see brief summary of prescribing information on next page.

Prevent recurrences month after month*

ZOVIRAX®
(acyclovir)
CAPSULES

Brief Summary

INDICATIONS AND USAGE: Zovirax Capsules are indicated for the treatment of initial episodes and the management of recurrent episodes of genital herpes in certain patients.

The severity of disease is variable depending upon the immune status of the patient, the frequency and duration of episodes, and the degree of cutaneous or systemic involvement. These factors should determine patient management, which may include symptomatic support and counseling only, or the institution of specific therapy. The physical, emotional and psycho-social difficulties posed by herpes infections as well as the degree of debilitation, particularly in immunocompromised patients, are unique for each patient, and the physician should determine therapeutic alternatives based on his or her understanding of the individual patient's needs. Thus Zovirax Capsules are not appropriate in treating all genital herpes infections. The following guidelines may be useful in weighing the benefit/risk considerations in specific disease categories:

First Episodes (primary and nonprimary infections — commonly known as initial genital herpes):

Double-blind, placebo-controlled studies have demonstrated that orally administered Zovirax significantly reduced the duration of acute infection (detection of virus in lesions by tissue culture) and lesion healing. The duration of pain and new lesion formation was decreased in some patient groups. The promptness of initiation of therapy and/or the patient's prior exposure to Herpes simplex virus may influence the degree of benefit from therapy. Patients with mild disease may derive less benefit than those with more severe episodes. In patients with extremely severe episodes, in which prostration, central nervous system involvement, urinary retention or inability to take oral medication require hospitalization and more aggressive management, therapy may be best initiated with intravenous Zovirax.

Recurrent Episodes:

Double-blind, placebo-controlled studies in patients with frequent recurrences (6 or more episodes per year) have shown that Zovirax Capsules given for 4 to 6 months prevented or reduced the frequency and/or severity of recurrences in greater than 95% of patients. Clinical recurrences were prevented in 40 to 75% of patients. Some patients experienced increased severity of the first episode following cessation of therapy; the severity of subsequent episodes and the effect on the natural history of the disease are still under study.

The safety and efficacy of orally administered acyclovir in the suppression of frequent episodes of genital herpes have been established only for up to 6 months. Chronic suppressive therapy is most appropriate when, in the judgement of the physician, the benefits of such a regimen outweigh known or potential adverse effects. In general, Zovirax Capsules should not be used for the suppression of recurrent disease in mildly affected patients. Unanswered questions concerning the human relevance of *in vitro* mutagenicity studies and reproductive toxicity studies in animals given very high doses of acyclovir for short periods (see Carcinogenesis, Mutagenesis, Impairment of Fertility) should be borne in mind when designing long-term management for individual patients. Discussion of these issues with patients will provide them the opportunity to weigh the potential for toxicity against the severity of their disease. Thus, this regimen should be considered only for appropriate patients and only for six months until the results of ongoing studies allow a more precise evaluation of the benefit/risk assessment of prolonged therapy.

Limited studies have shown that there are certain patients for whom intermittent short-term treatment of recurrent episodes is effective. This approach may be more appropriate than a suppressive regimen in patients with infrequent recurrences.

Immunocompromised patients with recurrent herpes infections can be treated with either intermittent or chronic suppressive therapy. Clinically significant resistance, although rare, is more likely to be seen with prolonged or repeated therapy in severely immunocompromised patients with active lesions.

CONTRAINDICATIONS: Zovirax Capsules are contraindicated for patients who develop hypersensitivity or intolerance to the components of the formulation.

WARNINGS: Zovirax Capsules are intended for oral ingestion only.

PRECAUTIONS: General: Zovirax has caused decreased spermatogenesis at high doses in some animals and mutagenesis in some acute studies at high concentrations of drug (see PRECAUTIONS — Carcinogenesis, Mutagenesis, Impairment of Fertility). The recommended dosage and length of treatment should not be exceeded (see DOSAGE AND ADMINISTRATION).

Exposure of Herpes simplex isolates to acyclovir *in vitro* can lead to the emergence of less sensitive viruses. The possibility of the appearance of less sensitive viruses in man must be borne in mind when treating patients. The relationship between the *in vitro* sensitivity of Herpes simplex virus to acyclovir and clinical response to therapy has yet to be established.

Because of the possibility that less sensitive virus may be selected in patients who are receiving acyclovir, all patients should be advised to take particular care to avoid potential transmission of virus if active lesions are present while they are on therapy. In severely immunocompromised patients, the physician should be aware that prolonged or repeated courses of acyclovir may result in selection of resistant viruses which may not fully respond to continued acyclovir therapy.

Drug Interactions: Co-administration of probenecid with intravenous acyclovir has been shown to increase the mean half-life and the area under the concentration-time curve. Urinary excretion and renal clearance were correspondingly reduced.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Acyclovir was tested in lifetime bioassays in rats and mice at single daily doses of 50, 150 and 450 mg/kg given by gavage. There was no statistically significant difference in the incidence of tumors between treated and control animals, nor did acyclovir shorten the latency of tumors. In 2 *in vitro* cell transformation assays, used to provide preliminary assessment of potential oncogenicity in advance of these more definitive life-time bioassays in rodents, conflicting results were obtained. Acyclovir was positive at the highest dose used in one system and the resulting morphologically transformed cells formed tumors when inoculated into immunosuppressed, syngeneic, weanling mice. Acyclovir was negative in another transformation system considered less sensitive.

In acute studies, there was an increase, not statistically significant, in the incidence of chromosomal damage at maximum tolerated parenteral doses of 100 mg/kg acyclovir in rats but not Chinese hamsters; higher doses of 500 and 1000 mg/kg were clastogenic in Chinese hamsters. In addition, no activity was found after 5 days dosing in a dominant lethal study in mice. In 6 of 11 microbial and mammalian cell assays, no evidence of mutagenicity was observed. At 3 loci in a Chinese hamster ovary cell line, the results were inconclusive. In 2 mammalian cell assays (human lymphocytes and L5178Y mouse lymphoma cells *in vitro*), positive responses for mutagenicity and chromosomal damage occurred, but only at concentrations at least 400 times the acyclovir plasma levels achieved in man.

Acyclovir has not been shown to impair fertility or reproduction in mice (450 mg/kg/day, p.o.) or in rats (25 mg/kg/day, s.c.). At 50 mg/kg/day s.c. in the rat, there was a statistically significant increase in post-implantation loss, but no concomitant decrease in litter size. In female rabbits treated subcutaneously with acyclovir subsequent to mating, there was a statistically significant decrease in implantation efficiency but no concomitant decrease in litter size at a dose of 50 mg/kg/day. No effect upon implantation efficiency was observed when the same dose was administered intravenously. In a rat peri- and postnatal study at 50 mg/kg/day s.c., there was a statistically significant decrease in the group mean numbers of corpora lutea, total implantation sites and live fetuses in the F_1 generation. Although not statistically significant, there was also a dose related decrease in group mean numbers of live fetuses and implantation sites at 12.5 mg/kg/day and 25 mg/kg/day, s.c. The intravenous administration of 100 mg/kg/day, a dose known to cause obstructive nephropathy in rabbits, caused a significant increase in fetal resorptions and a corresponding decrease in litter size. However, at a maximum tolerated intravenous dose of 50 mg/kg/day in rabbits, there were no drug-related reproductive effects.

Intraperitoneal doses of 320 or 80 mg/kg/day acyclovir given to rats for 1 and 6 months, respectively, caused testicular atrophy. Testicular atrophy was persistent through the 4-week postdose recovery phase after 320 mg/kg/day; some evidence of recovery of sperm production was evident 30 days postdose. Intravenous doses of 100 and 200 mg/kg/day acyclovir given to dogs for 31 days caused aspermatogenesis. Testicles were normal in dogs given 50 mg/kg/day, i.v. for one month.

Pregnancy: ***Teratogenic Effects:*** Pregnancy Category C. Acyclovir was not teratogenic in the mouse (450 mg/kg/day, p.o.), rat (50 mg/kg/day, s.c.) or rabbit (50 mg/kg/day, s.c. and i.v.). There are no adequate and well-controlled studies in pregnant women. Acyclovir should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus. Although acyclovir was not teratogenic in animal studies, the drug's potential for causing chromosome breaks at high concentration should be taken into consideration in making this determination.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Zovirax is administered to a nursing woman. In nursing mothers, consideration should be given to not using acyclovir treatment or discontinuing breastfeeding.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS — Short-Term Administration: The most frequent adverse reactions reported during clinical trials were nausea and/or vomiting in 8 of 298 patient treatments (2.7%) and headache in 2 of 298 (0.6%). Less frequent adverse reactions, each of which occurred in 1 of 298 patient treatments (0.3%), included diarrhea, dizziness, anorexia, fatigue, edema, skin rash, leg pain, inguinal adenopathy, medication taste and sore throat.

Long-Term Administration: The most frequent adverse reactions reported in studies of daily therapy for 3 to 6 months were headache in 33 of 251 patients (13.1%), diarrhea in 22 of 251 (8.8%), nausea and/or vomiting in 20 of 251 (8.0%), vertigo in 9 of 251 (3.6%), and arthralgia in 9 of 251 (3.6%). Less frequent adverse reactions, each of which occurred in less than 3% of the 251 patients (see number of patients in parentheses), included skin rash (7), insomnia (4), fatigue (7), fever (4), palpitations (1), sore throat (2), superficial thrombophlebitis (1), muscle cramps (2), pars planitis (1), menstrual abnormality (4), acne (3), lymphadenopathy (2), irritability (1), accelerated hair loss (1), and depression (1).

DOSAGE AND ADMINISTRATION: Treatment of initial genital herpes: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 10 days (total 50 capsules).

Chronic suppressive therapy for recurrent disease: One 200 mg capsule 3 times daily for up to 6 months. Some patients may require more drug, up to one 200 mg capsule 5 times daily for up to 6 months.

Intermittent Therapy: One 200 mg capsule every 4 hours, while awake, for a total of 5 capsules daily for 5 days (total 25 capsules). Therapy should be initiated at the earliest sign or symptom (prodrome) of recurrence.

Patients With Acute or Chronic Renal Impairment: One 200 mg capsule every 12 hours is recommended for patients with creatinine clearance ≤ 10 ml/min/1.73/m².

HOW SUPPLIED: Zovirax Capsules (blue, opaque) containing 200 mg acyclovir and printed with "Wellcome ZOVIRAX 200" - Bottles of 100 (NDC-0081-0991-55) and unit dose pack of 100 (NDC-0081-0991-56).

Store at 15°-30°C (59°-86°F) and protect from light.

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*In controlled studies, recurrences were totally prevented for 4 to 6 months in up to 75% of patients.

Burroughs Wellcome Co., Research Triangle Park, North Carolina 27709

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perspectives

Clinical monitoring of the nursing home patient

Eric G. Tangalos, M.D.[*]

Dr. Tangalos is president of the Minnesota Association of Nursing Home Medical Directors, a consultant in the Division of Community Internal Medicine at Mayo Clinic and Mayo Foundation, and assistant professor of medicine at Mayo Medical School.

Clinical monitoring of the nursing home patient has been a practice for as long as nurses have provided care to patients in nursing homes. Today nursing personnel are expected to provide and monitor a wide variety of services and be accountable for the delivery of quality care. The pressure mounts as reimbursement for patient care is now tied closely to the documentation of certain vital services that include clinical monitoring. Minnesota laws of 1985 established a new reimbursement system for residents in nursing homes and board and care homes certified to participate in the Medicaid program. This system is commonly referred to as a "case mix" system. With 11 payment classifications in this system based on residents' care needs, certain vital needs of the patient and the clinical situation weigh heavily into the equation.

Most primary care physicians in Minnesota now receive requests from nursing homes to provide a patient's plan of care, describe the patient's rehabilitation potential, and write orders for monitoring procedures to occur every shift. The first two requests comply with the letter of the law. The third request may reflect a patient's instability or a facility's attempt to improve its level of reimbursement. At a time when nursing homes are forced to reassess their costs and improve revenue, increasing clinical monitoring is as tempting as the carrot before the horse.

Of most concern may be the inherent pressures such a system brings to bear on personnel. If nursing home administrators are pressured by the "bottom line," they in turn, are going to pressure their nurses. The administration can hire and fire the nurses, the medical director, and even the utilization committee, depending on their performance. Patient care may suffer if the staff is working at cross purposes. The primary care physician may be uninvolved but should not be a disinterested party when it comes to establishing reasonable policies and procedures within the nursing home.

The Minnesota Department of Health has defined clinical monitoring "to include nursing procedures emanating from the resident's diagnosis and medically *unstable condition* and *high-risk* condition(s)." The criteria established by the state is as follows. The medical record must establish that:

- The physician has identified the medically unstable condition for which the clinical monitoring is needed.
- A registered nurse has completed an assessment identifying the high-risk condition(s).
- A written plan for clinical monitoring has been developed.
- Systematically recorded measurements (such measurements may be collected by licensed or unlicensed nursing personnel) have been made.
- The clinical monitoring data have been interpreted by a registered nurse and communicated to the physician.
- The physician has documented periodic reassessment of the resident's medical status and documented the need for continued monitoring.

The physician can no longer play a passive role in the nursing home setting. The physician should not look upon the new regulations as only more paperwork, but as an invitation to more active involvement in the delivery of quality nursing care. The renewed interest in clinical monitoring may relate to reimbursement; yet, the basic tenent and philosophy of the regulations have more to do with degree of illness and amount of nursing time required to care for the patient. Case mix was never meant to pay for busywork, and it has tried to address expenditures more reflective of patient illness and nursing care time. The hope is that clinical monitoring regulations should further the team approach to long-term care, and the physician can play a unique role in achieving this outcome.

The medical director can use his or her position to communicate the importance and validity of clinical monitoring to the nursing staff and the patient's physician. The service rendered and the importance of this service must be stressed. Documentation should follow only as a natural consequence of quality care. One important mechanism to implement appropriate guidelines for clinical monitoring is through utilization review.

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Utilization review has as its overall objectives both the maintenance of high quality patient care and assurance of appropriate and efficient utilization of facility services. A strong utilization review committee that includes the medical director can help shape policy, improve patient care, and improve employee morale. It can also serve to define what guidelines an individual facility should bring to bear with regard to the clinical monitoring of its residents. Administration needs physician input to outline reasonable policies and procedures, and both sides can work together to minimize any "gaming" of criteria.

From the physician's viewpoint, monitoring is a necessary part of care from which information can be collected and used to change or initiate specific treatment or provide data for maintaining a certain state of well-being. From the nursing viewpoint, clinical monitoring is dependent upon good assessment skills performed by or under the supervision of a licensed nurse. These are nursing observations that need to be accurate and clearly recorded.

Monitoring should be specifically ordered by the physician when the condition indicates the need for close observation. Apical pulse, blood pressure, temperature, I & O, weight, seizure precautions, edema, effects of medication, and blood sugar may all need monitoring. Because of earlier hospital discharges, the medical conditions of new nursing home residents today are far more unstable than just two years ago.

The frequency of monitoring should be determined by the condition of the resident, identified patient risks, and the desired outcome. Monitoring need not be limited to the unstable but may also be used as a preventive strategy. It is very difficult to discuss monitoring in general terms as it is most important to tailor it to a specific disease and clinical situation. Moreover, as medical conditions change dynamically over time, specific monitoring orders need frequent revision. Flexibility is often the hallmark of good care.

Medications and drug interactions cause many problems in our nursing home population and require an alert staff. A nursing home's consulting pharmacist has labored for years under the responsibility to monitor drug use, the related clinical parameters, and appropriate laboratory tests. A talk with the pharmacist might yield valuable guidelines that would be easy to implement and would provide opportunity for in-service discussion resulting in better patient care and useful clinical monitoring.

In summary, clinical monitoring requires group participation and involves teamwork in the best sense of the word. A coordinated effort and good communication provide the patient with better care, the home with better recordkeeping, and the doctor with better data.

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medicalegal brief

System failures: A malpractice pitfall

Paul S. Sanders, M.D., Chairperson
MMIE Risk Management Committee

As medical practices have become more complex and specialized, and advancing technology has expanded the spectrum of diagnostic procedures available to physicians, the problems of maintaining appropriate reporting and follow-up mechanisms on diagnostic tests have grown dramatically.

System failures — breakdowns in the reporting and follow-up of diagnostic tests and X-rays — have become a major factor in patient injuries and an ever more frequent cause of malpractice claims. The majority of these cases should be preventable, but when they occur, they are rarely defensible. Several case studies will illustrate the problem of system failures.

■ **Many cases involve failure to follow up on mammograms:** During a November 1984 hospitalization for unrelated symptoms, the patient expressed concern about a breast lump to Dr. Y, the covering partner of her primary physician, Dr. X. Dr. Y ordered a mammogram which was performed on the day of the patient's discharge, but it was never entered on the summary record from which Dr. X dictated his discharge summary. Dr. Y made no notation about the mammogram in his progress note and did not inform Dr. X that the test had been ordered. The radiologist's report, indicating definite abnormalities and recommending follow-up, was sent to Dr. X's office but was filed in the patient's chart without being seen by Dr. X.

Dr. X saw the patient on numerous occasions over the next year, but the patient made no mention of the mammogram and Dr. X did not notice the report of abnormal findings. In November 1985, during a physical exam, Dr. X finally found the mammogram report in the patient's chart and referred the patient to a general surgeon for follow-up. Infiltrating ductal carcinoma with lymph node metastases was eventually diagnosed and the patient underwent a modified radical mastectomy.

Allegation: Delay in diagnosis of breast cancer.

Settlement: $242,000.

■ **Other types of radiology reports are frequently at issue in system failure cases:** The patient, a 57-year-old female, was seen by her family physician in the emergency room after the patient fell, fracturing her wrist. She was scheduled to be seen the following day by an orthopedic surgeon for open reduction of the fracture. A routine chest X-ray taken on admission was interpreted as showing an infiltrate in the left lung. However, neither the film nor the radiologist's report were reviewed by the family physician or the orthopedic surgeon. Three months later, the patient returned to her family physician complaining of respiratory symptoms. At this time, she was diagnosed as having squamous cell carcinoma of the lung. Two months after the diagnosis was made, the patient died.

Allegation: Delay in diagnosis of lung cancer.

Settlement: $10,000.

■ **Laboratory findings can also fall through the cracks:** The patient, a 66-year-old male, was hospitalized for generalized aching, weakness, and malaise. Dr. X, an internist, ordered a serum cholesterol level, but the results, which indicated possible panhypopituitarism, were not returned until after the patient was discharged. A copy of the lab report detailing the abnormalities was sent to Dr. X's office, but it was filed in the patient's chart without being reviewed by Dr. X. One year later, the patient was seen by another physician who confirmed the diagnosis of panhypopituitarism and initiated appropriate treatment.

Allegation: Failure to diagnose panhypopituitarism.

Settlement: $20,000.

Dr. X, a cardiologist, had been treating the patient with 5-7.5 mg of Coumadin/day since the patient had undergone a mitral valve replacement in 1980. On November 5, 1984, the patient had a routine prothrombin time taken at the hospital. The results were mistakenly reported to Dr. X by lab personnel as 13.8 seconds, rather than the accurate value of 25.9 seconds. Based on this erroneous report, Dr. X increased the patient's dosage of Coumadin to 10 mg/day.

A copy of the lab report indicating the correct protime of 25.9 seconds was sent to Dr. X's office but was filed in the patient's chart without review by Dr. X. The patient did not return for the recommended protime check. The next time Dr. X saw him was on December 10, when the patient was admitted to the hospital with severe hemorrhaging in the hip and back muscles. His protime on admission was 47 seconds. At this time, Dr. X reviewed the November 5 lab report and discovered the error that had led to the prescription of an overdose of Coumadin.

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Allegation: Negligent overdose of Coumadin.

Settlement: $20,000.

All of these system failures resulted in severe patient injury and significant payouts on malpractice claims. Yet, all of them should have been preventable. Physicians, clinics, and hospitals must make certain that strict mechanisms are in place to ensure prompt, appropriate follow-up on all abnormal lab and radiology reports. Recommended systems to promote patient safety and minimize liability exposure include:

■ **For labs and radiologists:**

– Call all panic values and significantly abnormal results directly to the physician ordering the test or X-ray. Document these calls carefully.

– After abnormal results are called, send a copy of the report to the ordering physician. "Flag" all abnormal reports with a conspicuous marking to enhance the probability that they will be noted and responded to promptly.

– Radiology departments and labs located in the same clinic as the physician ordering tests must develop comparable mechanisms for making sure abnormal results are relayed appropriately. Some of the biggest system failures can occur between clinic departments that are supposedly working in concert.

■ For clinics and physicians ordering X-rays and tests:

– Enforce a policy under which *no* reports are filed in patient charts without the physician's initials or some other indication that they have been reviewed by the physician.

– Implement a "tickler system" or log for keeping track of tests ordered and following up to ascertain results if reports are not received in a timely fashion. Simply maintaining a list of significant tests ordered that can be checked off as results are received can be an effective, easy safeguard against system failures.

– Inform patients that it is important for them to call the clinic to check on results of pertinent tests if they have not received a report from the physician or clinic in X days. Make certain that all staff members responsible for handling these calls are well-trained in how to appropriately respond to patients and in identifying when system failures have occurred.

– Develop a standard means of documenting in the medical record that patients have been notified of test results.

Note: Articles in this series are not legal advice. Readers should obtain specific legal advice from a qualified attorney.

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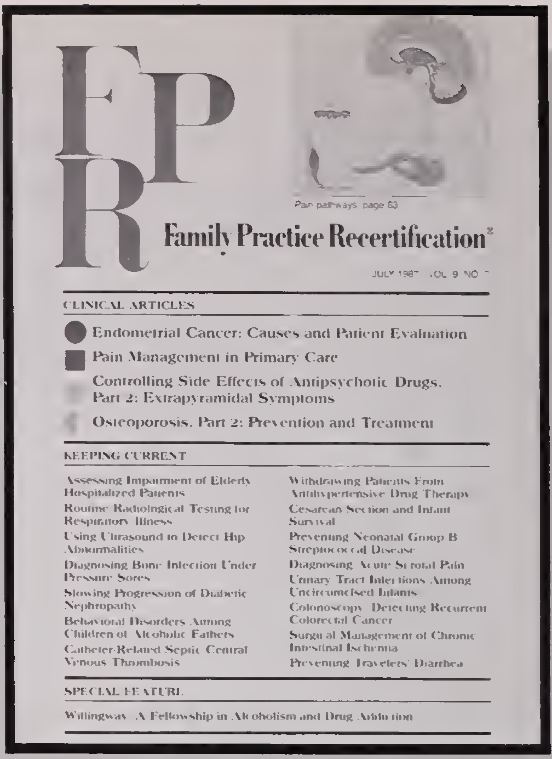

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AIM HIGH

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AIR FORCE

Patient Surveys from p. 689

the viability of a new satellite office, you are best advised to engage outside expert assistance. Obversely, you don't need a multinational market research firm to determine whether your patients feel they have adequate access to your services.

Starting with a Framework

If your group is like most, you probably need answers to a variety of specific questions but would also like to test other hypotheses that are relevant to perceived quality of care and the market position of your group. As an aside, in the world of market research, perception *is* reality and you are best served by not trying to argue that, for example, "my telephone call returning behavior has nothing to do with the quality of my care," because in the eyes of the patient it does.

A framework that has proven useful in less complex surveys is one that addresses the following components.

■ **Demographics:** Basic statistics can be useful and should be gathered. They included: age, sex, payer type, zip code, employment status, marital status.

■ **Health status self assessment:** Asking one question about health status can be useful later in stratifying subjects into categories if you choose.

■ **Style/"art of care":** This basic category should be broken into two subcategories: physicians and staff. Issues to be addressed here include courteousness; helpfulness; sensitivity; personalization of care; time spent with patients, listening, caring, explaining/educating/teaching; and consideration of the patient's personal needs, cares, and concerns.

■ **Clinic systems:** This area represents one of the more important for tapping into patients' perceptions of quality and overall level of satisfaction, primarily because patients spend far more time with the systems of care delivery than they do with the physician. Examples of important systems are: access to care and appointment availability; waiting time; follow-up after appointments; billing; telephone accessibility to the office in general, to the nurses, and to physicians; and office hours. Special systems may also be considered depending on the medical specialty and service make-up of the office. To determine which system's related issues are important to survey it's often helpful to meet with the clinical and office staff for a brainstorming session on the subject.

■ **Other health service use behaviors:** It's very useful to gain an understanding of how your patients are using the health care system. Ask them about visits they've made to other medical specialists over the last year. Include a broad spectrum of options — ancillary providers, paraprofessionals, etc. You may be surprised at the responses.

■ **Accessibility to medical care:** As the third-party payer system becomes ever more restrictive, and especially if you are a primary care physician serving a gatekeeper function, patients' perception of their accessibility to needed care becomes important. If the patient feels restricted by the system in any way, his or her overall perception of your quality of care can be affected. It's important to ferret out erroneous beliefs as well (e.g., "my HMO won't pay for serious problems"). These misconceptions can affect how you are perceived as well as patients' use of the system in general.

■ **Strengths/weaknesses:** "What do we do well?" and "What could be improved?" may be the most useful questions to ask. Patients do respond well to these questions and will give you useful and frank responses.

■ **Service improvements:** Asking how services can be improved or enhanced is also valuable. Even if requests or suggestions are unreasonable or beyond your scope, they will give you an idea of the patient's frame of mind.

■ **General quality of care and satisfaction:** Above all don't fail to ask (as a scaled item) the patient's overall and general opinion of the quality of care received and level of satisfaction with the care and service provided. The responses serve a dual purpose. First, they will bring the entire survey results into better focus. Second, if you want to delve into some more sophisticated analyses, you can begin to understand how specific variables affect overall perceptions. That type of analysis can be very useful from a management and decision-making perspective.

■ **Need for other health care service:** It's useful to ask your patients questions pertaining to the local health care system, e.g., "Are there enough family doctors, specialists, etc., and what services are needed?"

Technically related issues are notably absent above because, as many would agree, technical competence is usually assumed by the patient. Further, measuring it is certainly beyond the scope of most office-based surveys as well as this paper.

Methods and Design

The office-based survey is by far the most efficient to administer and is the least expensive option. Further, it eliminates a response bias that is inherent in mail-back surveys. Surveys can be given to patients prior to their appointments. This method does not, of course, work well with first-time patients. Although sample size is always important, several studies and the author's experience suggest that about 50 to 100 surveys per physician is adequate. Under normal circumstances this would represent up to a 2% sample of all patient visits. Sampling should be given consideration as well. If specific patient characteristics are to be targeted (i.e., demographics, health conditions, payer type, etc.), you may want to randomize distribution within one or several target stratifications. If specific characteristics are relatively unimportant and there is no reason to believe that one week of appointments is much different from another (i.e., patient mix), then distribution to consecutive patients is acceptable. Make sure, however, that staff members assisting with the project don't pick and choose survey subjects based upon their own selection criteria because this will destroy the integrity of the project.

Patients accepting the survey should be assured that responses are provided anonymously, they should be given an envelope in which to seal their survey, and they should be allowed to deposit it themselves in some type of collection box. It's helpful to include a few remarks on the header of the survey explaining that their responses are needed and will be used to improve services to them. The signature of a medical director or staff physician will lend additional credibility.

In designing a survey, ease of use is critical. While length is important, don't be afraid of making it complete. Patients are usually pleased to help and will gladly spend ten minutes on a survey. A considerable amount of information can be gathered in that time.

Item drafting is at the heart of good survey construction. In the type of survey described here there are basically three types of response formats: scaled, multiple option, and fill-in or open-end. Each has a specific purpose and is treated differently in the analysis. Before launching headlong into item construction, you should first create a framework based upon some specific questions for which you need answers. By beginning with a question-based framework you can better assure that you ask what you want answered and minimize wasted effort. An example of this question-based foundation might include some of the following:

- Do patients perceive that our services are readily accessible?
- Is our telephone "system" responsive?
- Are support staff perceived to be courteous and helpful?
- Are physicians and staff following up quickly and appropriately?
- Is our service mix adequate?
- Are we doing a good job coordinating our patients' care?
- Do patients perceive that we provide personalized care?
- Do we handle referrals to other physicians adequately?

Once you're satisfied with the list of questions, you can more easily and efficiently construct survey items to address them.

Survey Items

When designing survey items remember two basic rules of thumb. First, don't lead your subject with loaded questions such as "When the office is busy, how long do you expect to wait to see the doctor?"; and second, don't combine two questions into one, e.g., "Is the receptionist courteous and helpful?"

If items are used that incorporate a scaled response format such as "not satisfied" to "very satisfied" or "strongly disagree" to "strongly agree," it's useful to construct at least a four- or five-point scale as in:

strongly disagree disagree
agree strongly agree
or
very dissatisfied somewhat dissatisfied
somewhat satisfied
satisfied very satisfied

Neither is necessarily better than the other; the point is that, generally, the greater the response options, the more sensitive the scale will be as compared with a yes/no type option. Given that most patients are favorable toward their physician and office, you need a high degree of sensitivity in scaled responses to make the aggregate data useful.

For open-ended questions (questions that require an "in your own words" response), be careful to craft questions and statements so that they are most likely to stimulate thought and elicit a useful answer. An example of a poorly written question is: "Is our appointment scheduling system adequate?"

It is poorly written, because it is not likely to elicit a fully useful response. You are likely to get a litany response like:

"yes"
"no"
"sometimes"
"depends."

Further, as the question is written, it is unclear whether the reference is to access to care (appointment availability) or method by which appointments are made, or, conceivably, the time allocated to appointments. Assume that the question is supposed to tap into perceptions regarding appointment availability, then a better way of drafting the question might be:

"For today's appointment were you able to see *your doctor* within a reasonable time from when you called? If not, what specific problems did you have?"

This approach more directly targets patients' perceptions of appointment availability relative to their own perceptions of need.

A question that should arise here relates to how many questions within each category should be asked. The short answer to the question is that you ask as many as is necessary to get the answers you need. Don't succumb to the myth that patients won't fill out long surveys because they will.

The longer answer is: you should be able to accomplish your basic objectives with 30 to 40 questions. Since many of the questions can be formatted using Likert-type scales or multiple option, the time spent on the survey can be reduced

Survey Design Blueprint

Category	Approximate Number of Questions	Format	Abbreviated Example
Demographics	4-5	Fill-in	Your gender is _____male _____female Your zip code is ________ Your age is _____
Health status self assessment	1-2	Scaled	Overall how would you rate your current health care?
Style/art of care	5-7	Scaled	My doctor listens to what I have to say about my health. My doctor gives me personalized medical care. My doctor is sensitive to my needs as a person. My doctor's staff is courteous.
Clinic systems	5-10	Scaled	My doctor's office follows up promptly with lab or X-ray results. The bill I receive for services is easily understandable.
Health service user behavior	3-5	Fill-in	About how many times in the last year have you seen any doctors for health-related issues? In the last year have you seen other health or medical specialists?
Access to care	1-3	Scaled	I'm able to get an appointment with my doctor as soon as I need one.
Strengths/service improvement	1	Open-end	What does the clinic/doctor do especially well?
Overall quality of care	1	Scaled	I'm very satisfied with the quality of care I receive.
Overall satisfaction with care	1	Scaled	Overall how satisfied are you with the clinic/doctor?
Need for other health services	1	Open-end	What services should be added to improve the medical care from the clinic/doctor?

to 8 to 12 minutes. For a basic structural design of a patient survey, please see the sample survey design blueprint (facing page).

Analysis

The level of analysis applied to the raw data desired from an office survey should be directly proportional to how critical the answers are for their intended use. As discussed earlier, if the targeted outcome is a decision regarding whether or not to add a satellite, expert review of the data is recommended. If you think you will need that expert review at the data analysis stage, by all means engage it at the beginning during the design stage. Fancy statistical manipulation of data derived from a poorly designed survey will likely produce unreliable results in which you can have little confidence.

If your ultimate goal is to uncover potential problems or confirm existing hypotheses about the practice and you don't have the availability of statistical analysis software, some basic analyses efforts should be sufficient. First, there is no substitute for "batching" responses under one question heading (most used with open-end or fill-in-the-blank questions). Basically, you line up all the responses under the question to get a feel for the collective direction of the responses. For questions where specific ideas or recommendations are offered, you can establish categories and tally them to look for trends.

To analyze the scaled responses (i.e., agree to disagree, etc.), you can assign a numeric value (e.g., 1-4) and calculate basic statistics like frequency (or percentage) of response per category as well as simple averages. For the statisticians in the crowd, the statistical assumption here is that the data is equal internal and continuous. While some might split hairs technically, these assumptions are practical and useful for this purpose. One word of caution when reviewing basic statistics on scaled data: the tendency may be to view the "glass as being half full." For example, if 80% of the patients surveyed on a follow-up after appointment question are "satisfied" to "very satisfied," there are still 20% who may be "somewhat satisfied" to "not satisfied." Some groups may say that "we're doing pretty well," while in reality, 2 out of every 10 patients would (implicitly) like to see improvement. The point is, don't allow yourself to be lulled into striving for mediocrity. You are, after all, a service business.

One last comment related to analysis: a survey represents a snapshot in time; two surveys over time represent a sampling of a trend. If you intend to survey at all, plan on doing it again, and possibly again. The effort will pay off. You do, however, need a slightly higher level of statistical analysis to assure that an apparent trend is actually a trend and not due to sampling error.

Summary

For a survey to be useful it must be done well. It does not need to be overly complex or expensive. It should be viewed as an investment in the practice and as well-spent marketing dollars. You don't need to be a statistician to determine what your patients want. You do, however, need to devote the time and effort to answer critical questions and, more important, a willingness to use the information to your advantage.

abstracts

Editor's note: On the next few pages, *Minnesota Medicine* offers its readers something unusual: a series of abstracts from clinical papers we had planned to publish in their entirety. However, the MMA decision to change *Minnesota Medicine* from a clinical journal to health affairs journal made this impossible. As a compromise, and in the best interests of the authors and our readers, we decided to publish the articles in abstract form. Complete copies of the manuscripts are available to interested readers. *RLR*

Adsol® Preservation Solution (AS-1) in Blood Tranfusion: Clinical Considerations

Bruce Newman, M.D.[*], and Jeffrey McCullough, M.D.[+]

Red blood cell storage can be improved by using different preservatives, one for the collection of whole blood and one for the packed RBCs. This blood preservation system is known as the additive system. AS-1 is a representative of the new additive system. Compared with those preserved by the present anticoagulant CPDA-1, RBCs stored in AS-1 have a significantly improved flow rate, longer shelf-life, greater plasma recovery, and better platelet yields. Plus, AS-1 offers the opportunity to optimize the storage of other components. Other advantages include a lower citrate load and fewer microaggregates. Almost all regional blood centers using AS-1 report net cost savings resulting from decreased outdating, increased plasma recovery, and decreased transportation costs. These offset implementation costs. Potential problems include slightly more volume per RBC unit, more leukocyte content per platelet concentrate, and higher glucose levels. The advantages of using AS-1 outweigh the disadvantages, and the additive system is increasingly the preservation method of choice.

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[+] Professor of Pathology, Director of Blood Bank, University of Minnesota and Deputy Executive Medical Director, St. Paul American Red Cross.

Anatomy and Learning Valid History Taking for Therapy and Healing

(Preventing and Reducing Medical Malpractice Suits)

John E. Verby, Jr., M.D.[*], and R. Harvard Davis, D.M., F.R.C.G.P.[†]

The authors describe the use of audiovisual tapes as a teaching tool in medical education and therapy. Over 3,000 audiovisual recordings of student and practicing physician experiences with patients in the consulting room reveal the potential for teaching and learning the "art of medicine" and developing appropriate patient-doctor relationships. Rapport and trust are quickly developed, self-disclosure is rapid and more valid with less denial on the part of the patient. The authors argue that improved doctor-patient relationships and mutual satisfaction may prevent or reduce the current surge in medical malpractice suits. The authors observed that students also learned about the variation in practices and elicited more clinical data for appropriate therapy and eventual healing with or without the use of pharmaceutical drugs.

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[†] Professor, Department of General Practice, University of Wales College of Medicine, Cardiff, Wales.

An Apparent Cluster of Hodgkin's Disease in Northern Minnesota

Patrick A. Hessel, Ph.D.[*]

Five cases of Hodgkin's disease — in an 18-year-old male, a 21-year-old female, a 28-year-old male, a 15-year-old male, and a 13-year-old female — were diagnosed in two adjacent Minnesota mining communities, combined population 6,473, in a 3½ year period. The two towns border each other directly and share a common high school. The towns are located in an iron mining district and are surrounded by taconite tailings piles. This cluster occurred in a small geographic area; was composed of young people; three of the five had histories of mononucleosis; and all of them had contact with each other. The author reasons that it is not possible to draw firm conclusions on the basis of this small number of cases but notes that the data are significant in light of what is known and postulated about the epidemiology of Hodgkin's disease.

[*] Department of Environmental Health, University of Minnesota, Minneapolis, MN.

Breast Cancer During Pregnancy

Jennifer C. Schaal, M.D.; T.M. Julian, M.D.*; and John P. Delaney, M.D., Ph.D.†*

Breast cancer is diagnosed before or during pregnancy in three of every 10,000 pregnancies. Survival is comparable to that of nonpregnant women with breast cancer. Subsequent pregnancy does not alter survival in women previously treated for breast cancer. The best way to decrease mobidity and mortality is to carefully examine the breasts in all prenatal patients. If a lesion is found, and if it is either benign or malignant, it should be treated in the same way as if the patient were not pregnant. With surgically treatable breast cancer, there is no reason to interrupt the pregnancy. In a pregnant patient without metastases, pregnancy following surgery has a good prognosis for both mother and fetus. The authors also look at the dilemma faced by women considering pregnancy after treatment for breast cancer.

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†Director of Breast Diagnostic Clinic, Department of Surgery, University of Minnesota, Minneapolis, MN.

The Characteristics of SIDS Victims in Minnesota, 1976-1980

Sharon P. Aadalen, R.N., Ph.D., and Ralph A. Franciosi, M.D.†*

The authors studied 20 sociodemographic characteristics of 451 SIDS victims and families in Minnesota between 1976 and 1980, establishing a data base of the Minnesota SIDS population. The data, obtained through matched birth and death certificate review, suggest several environmental factors affect young families—factors that may affect the intra-uterine as well as the perinatal environments of infants. Significant differences on five variables were found between SIDS victims/family systems and all infants born in Minnesota. Those variables were: race, birth weight, parental marital status, and maternal age and education level at the time of the child's birth. The data substantiate that SIDS spares no age group of mothers, educational level of parents, or socioeconomic level of family system. Although the statistical profile of sociodemographic characteristics does not predict the SIDS victim, it can contribute to understanding more about potential risk factors associated with SIDS.

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†Director of pathology, Minneapolis Children's Medical Center, and Director of the Minnesota SIDS Center, Minneapolis, MN.

Chest Wall Twitching — The Pacemaker Twiddler's Syndrome

Thomas J. Davis, M.D.; Arlen R. Holter, M.D.+; John Wheeler, M.D.†; John E. Bassett, M.D.**

A 64-year-old male patient who received a permanent transvenous cardiac pacemaker self-manipulated ("twiddled") the pacemaker battery. (He had a nervous habit of tugging the pacemaker pack.) A chest X-ray showed the pacemaker power pack had migrated down the chest wall creating tension on the lead where it was sutured to the pectoralis major fascia. This resulted in fracture of a silastic lead at the insertion site under the left clavicle. This fracture caused twitching of the left shoulder and a free-floating pacing lead within the right atrium and ventricle that was removed by thoractomy. "Twiddler's syndrome" has been most frequently associated with older, heavier units, implantation locations such as the abdominal wall or close to the axilla, and usually in children and young women. Unlike the majority, this patient was male, older, and had a medically implanted small lithium generator. In spite of this, generator manipulation was still possible, permitting lead fracture and migration. The authors stress that patients should be reminded not to manipulate the pacemaker battery pack.

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+Internist practicing in St. Paul.

A Commentary on Learning Disabilities in Children: A Clouded Forecast?

*Edmund C. Burke, M.D.**

This writer was impressed by the report by Hartzell and Compton[1] and wishes to direct attention to its implications. Despite efforts of all who labor to help children with learning disabilities, there are very few hard cold critical appraisals of the outcome. Hartzell and Compton offer a chilling picture.

Hartzell and Compton reported that 114 children with learning disabilities, showed a life-long disability. These authors found limited academic success and social difficulties despite the fact that these children came from highly educated families with socioeconomic advantages. Learning disabled children were obviously academically and socially handicapped when compared with their siblings who were not learning disabled. The academic success of nonhandicapped siblings was 75%, compared with the learning disabled students' academic success of 23%. High social success was attained by only 31% of the learning disabled group, but by 77% of their siblings. The report concludes there is limited success despite numerous efforts to help these children. Early intervention seems to have little advantage. Those factors correlated with success include: high IQ, mild disabilities, strong familial support, a high occupational level of the "breadwinner," and a high educational level for the mother.

Questions left unanswered: Was this too highly selective a population? Are our remedial methods in need of an overhaul, a redesign? Should we await a 20-year follow-up?

[*] Consultant, Department of Pediatrics, Mayo Clinic/Mayo Foundation, Rochester, MN.

[1] Hartzell HE Compton C Learning disability. 10-year follow-up. Pediatrics 74:1058, 1984

Comparison of Chymopapain Injection to Lumbar Laminectomy

Jerry L. Hubbard, M.D.[*]*, and Burton M. Onofrio, M.D.*[*]

The authors reviewed the four-year follow-up data in 268 patients who had received chymopapain injections to relieve intervertebral disc symptoms. The early failure rate was 5.6%. Those patients who had no relief after injection required open laminectomy within six months. Thirteen of the 15 patients who underwent surgery had sequestered fragments, but two of them had no protruded or extruded fragments. The authors review the literature, comparing the complications of chymopapain-treated patients against those treated by hemilaminectomy. Proper patient selection is necessary to achieve optimal results when considering open laminectomy versus chymopapain injection. Although the risk of severe anaphylaxis and delayed paraplegia are rare complications of chymopapain treatment, the overall rate of complications with chymopapain is less than with open laminectomy.

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The Evaluation of Hypertension

James E. Rubin, M.D., F.A.C.P.[*]

Sixty million Americans have hypertension, yet half of them are unaware of the problem. In 95% of patients, the cause is unknown and is called primary or essential hypertension. The other 5% of cases have a known cause and are called secondary hypertension. Causes include renovascular and renal parenchymal disease, pheochromocytomas, vasculitis, primary aldosteronism, Cushing's syndrome, coarctation of the aorta, and cerebrovascular disease (usually as the result of cerebral edema). In the office setting, physicians can detect 99% of the secondary causes with a complete history, physical examination, and laboratory tests. Tests should include CBC, electrolytes, SMA 12, T4, urinalysis, EKG, and chest X-ray. If these fail to reveal a cause, the physician may want to consider an IVP, renal scan and flow study, angiography, plasma cortisols, plasma renin activity, and plasma and urinary aldosterone. The author discusses some of the more important causes of hypertension and shows a logical evaluation of this disease process that can be done by most general practitioners.

[*] Clinical associate professor of medicine, University of Minnesota Medical School, Minneapolis, MN.

Lipoma of the Lungs and Airways

David M. Skillrud, M.D.[*]*, and Denis A. Cortese, M.D.*[†]

Two lipomas — one endobronchial and the other parenchymal — occurred at the Mayo Clinic from 1972 to 1983. The first patient was a 58-year-old male smoker who presented with right upper lobe pneumonia. A right upper lobectomy was performed, and an endobronchial lipoma (1.5 × 1.0 × 0.6 cm) was found. The second patient was a 63-year-old nonsmoking male who noted cough, sputum production, and wheezing. A right lower lobe lesion was found on X-ray, and at thoracotemy a 4 cm intrapulmonary encapsulated lipoma was removed by wedge resection. This retrospective analysis confirms the uncommon occurrence of lipomas within the lungs and upper airways. To date, 57 cases of endobronchial lipomas and five cases of parenchymal lipomas have been described in the English literature. Although lipomas of the lungs and airways are uncommon clinical entities, they stimulate a malignant lesion on radiographic studies and may produce obstructive symptoms (such as recurrent pneumonitis or atelectasis) and dysphagia or hoarseness.

[*] Fellow, Division of Thoracic Diseases and Internal Medicine, Mayo Clinic and Mayo Foundation, Rochester, MN

[†] Consultant, Division of Thoracic Diseases and Internal Medicine, Mayo Clinic and Mayo Foundation, Rochester, MN.

Single-Needle Technique for Celiac Plexus Block

Josef K. Wang, M.D.[*]*, and Lester J. Steidl, M.D.*[+]

At the Mayo Clinic a single-needle technique for celiac plexus block produced good to excellent results for 9 of 12 patients with intractable upper abdominal pain secondary to pancreatic cancer. The single-needle approach reduced risk as compared with bilateral needle punctures and was useful for those patients who were unable to tolerate the prone position. All 12 patients obtained relief of pain from bupivacaine injections. On the first postoperative day, 4 patients required additional bilateral blocks. However, only 1 of the 4 benefited. In a 3-month follow-up, 8 of 9 patients continued to maintain adequate pain relief. No hypotensive episode occurred after the block, and no neurologic complications were reported.

[*] Professor of anesthesiology, Yale University School of Medicine, New Haven, CT.

[+] Resident in anesthesiology, Mayo Graduate School of Medicine, Rochester, MN.

Surgical Management of Injuries to the Descending Thoracic Aorta Secondary to Blunt Thoracic Trauma

J. Stonewall Dorsey, M.D.; James T. Sturm, M.D.*; Timothy R. Billiar, M.D.*; Jorge Corgordan, M.D.*; and John F. Perry, Jr., M.D.**

Over a 15-year span, 37 patients with trauma tears of the descending aorta were treated at St. Paul-Ramsey Medical Center Trauma Unit. Diagnosis was made by aortography in 35 patients. In two patients aortic rupture was diagnosed at exploratory thoracotomy for severe intrathoracic bleeding. For patients 25 years or younger, survival was 93%. For those over 25, survival dropped to 55%. Postoperative complications developed in 86% of patients. In general, postoperative complications are high primarily because of the number of associated injuries. These injuries can cause serious nutrition problems, therefore emphasis has been on early recognition and management of nutritional problems in patients with multiple trauma. Both survival and morbidity should improve in these patients if there is continued improvement in the postoperative management of patients with multiple trauma and the development of new surgical techniques.

*Departments of Surgery and Emergency Medicine, St. Paul-Ramsey Medical Center and the University of Minnesota.

Traumatic Diaphragmatic Hernia Presenting after Tracheostomy

Helmut W. Lange, M.D., and John Mielke, M.D.†*

A 77-year-old woman with left rib fractures underwent tracheostomy for bilateral vocal cord paralysis before elective vascular surgery. After surgery, a left empyema developed secondary to a diaphragmatic hernia and a strangulated and gangrenous stomach. The lack of glottic closure during coughing and vomiting favors stomach herniation and incarceration in susceptible patients. The case was typical of the delayed presentation of diaphragmatic rupture in several respects: a past history of trauma, left-sided empyema with enteric flora, and X-ray findings. There was a close correlation of stomach incarceration with the placement of a tracheostomy. Glottic closure during coughing and vomiting prevents herniation. A tracheostomy bypasses glottic closure and allows for increased pressure. This can cause herniation of abdominal contents through a preexisting rent in the diaphragm. If a left-sided empyema develops in a patient with a history of abdominal or thoracic trauma who has compromised glottic closure from endo- or transtracheal intubation, a strangulated diaphragmatic hernia should be suspected.

*Department of Internal Medicine, University of Minnesota, Minneapolis, MN, when written; currently at the University of Hamberg in West Germany.
†Abbott Northwestern Hospital, Minneapolis, MN.

Weight Training by Cardiac Patients: Should They or Shouldn't They?

*Daniel G. Carey, M.A.**

The author studied 19 male cardiac patients who were participating in a cardiac rehabilitation program. To monitor the acute cardiovascular effects of a bench press exercise, he monitored heart rate, blood pressure, double product (heart rate x blood pressure x 10^{-2}), and arrhythmias during and immediately after ten repetitions of a bench press at a patient-selected weight. The findings were: 1) Maximal heart rate, blood pressure, and double products were 63%, 82%, and 56%, respectively, of maximal values obtained during graded exercise testing; 2) No ischemic segment changes occurred; 3) One patient experienced an arrhythmia; and 4) No angina occurred, but two patients had maximum double product values greater than desired. The author concludes weight training was safe for 17 of 19 patients.

*Exercise physiologist, Mt. Sinai Hospital, Minneapolis, MN.

ELKO REGIONAL
MEDICAL CENTER

Fourteen-physician multi-specialty group is looking for two family practice physicians to join a busy group and help develop the Department of Family Practice. Elko is a rapidly growing rural community at the base of the Ruby Mountains. Outstanding recreational opportunities. Sixty-bed community hospital. Excellent salary, incentive and benefit package. Contact: Thomas A. Fenger, Ph.D., Chief Executive Officer, 762-14th Street, Elko, Nevada 89801.
Phone: (702) 738-3111

Minnesota Medical Association

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DECEMBER 1987

3-5 **Cardiopulmonary Medicine** St. Paul-Ramsey Medical Center; Holiday Inn East, St. Paul, Minnesota. CONTACT: Bonnie Young, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-3977.

4 **Twentieth Annual Symposium on Obstetrics and Gynecology** North Memorial Medical Center; North Memorial Medical Center, Robbinsdale, Minnesota. CONTACT: Molly Kundinger, 3300 North Oakdale, Robbinsdale, Minnesota 55422; (612) 520-5940.

5 **Minnesota Obstetrical and Gynecological Society Fall Meeting** Minnesota Obstetrical and Gynecological Society; Marquette Inn, IDS Center, Minneapolis, Minnesota. CONTACT: T.M. Julian, M.D., Box 395 UMHC, Minneapolis, Minnesota 55455; (612) 626-6034.

5 **AIDS: Epidemiological, Medical, Neuropsychiatric, Psychosocial and Legal Aspects** Minnesota Psychiatric Society; Hotel Sofitel, Bloomington, Minnesota. CONTACT: Mrs. Patricia Rowe, 1770 Colvin Avenue, St. Paul, Minnesota 55116; (612) 698-1971.

15 **Pediatrics — CME** Mesabi Regional Medical Center; Mesabi Regional Medical Center, Hibbing, Minnesota. CONTACT: Diane Antonovich, 750 East 34th Street, Hibbing, Minnesota 55746; (218) 262-4881.

JANUARY 1988

15-16 **The First Annual OB/GYN Scientific Conference** Hennepin County Medical Center and Hennepin Faculty Associates; Hyatt Regency Hotel, Minneapolis, Minnesota. CONTACT: Eugenia Kassar, CME Director, Office of Academic Affairs, Hennepin County Medical Center, 701 Park Avenue, Suite 4220, Minneapolis, Minnesota 55415; (612) 347-2075.

29-30 **New Drugs and New Uses for Old Drugs** Park Nicollet Medical Foundation; Naegele Auditorium, Park Nicollet Medical Center, Minneapolis, Minnesota. CONTACT: Elaine Anderson, Director of Professional Education, 5000 West 39th Street, Minneapolis, Minnesota 55416; (612) 935-3535.

FEBRUARY 1988

1-5 **Current Concepts in Cardiovascular Diseases** Mayo Clinic/Mayo Foundation; Buena Vista Palace, Orlando, Florida. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

10-14 **Basic Review and Recent Advances in Head and Neck Surgery** Mayo Clinic/Mayo Foundation; Hyatt Orlando, Orlando, Florida. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

22-26 **Selected Topics in Internal Medicine** Mayo Clinic/Mayo Foundation; Sheraton Scottsdale, Scottsdale, Arizona. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

FEB 23-MAR 12 **South America Air/Sea Cruise aboard the Royal Viking Sea** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

FEB 23-MAR 12 **South Pacific/Australia, New Zealand, including Great Barrier Reef** North Central Medical Conference. CONTACT: Harold Brunn, North Central Medical Conference, 1845 Hampshire Avenue, Suite 200, St. Paul, Minnesota 55116; (612) 698-1888.

FEB 29-MAR 4 **Neurology in Clinical Practice** Mayo Clinic/Mayo Foundation; Kauai Hilton, Lihue, Kauai, Hawaii. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

MARCH 1988

14-16 **Gynecologic Surgery - 1988 Update** Mayo Clinic/Mayo Foundation, Wyndham Hotel, Palm Springs, California. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnnesota 55905; (507) 284-2509.

APRIL 1988

11-13 **Bone and Soft Tissue Tumors Course** Mayo Clinic/Mayo Foundation; Hyatt Orlando, Orlando, Florida. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

14-16 **Pediatric Days** Mayo Clinic/Mayo Foundation; Mayo Clinic, Rochester, Minnesota. CONTACT: Rita Kunz, 200 First Street SW, Rochester, Minnesota 55905; (507) 284-2509.

15-16 **11th Annual Update in Clinical Cardiology** Abbott Northwestern Hospital; Radisson Plaza Hotel, Minneapolis, Minnesota. CONTACT: Tim Schuh, CME Office, Abbott Northwestern Hospital, 800 East 28th Street, Minneapolis, Minnesota 55407; (612) 863-5461.

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For Sale: General Practice Roseville area. Includes office equipment and leased office space for 1-2 doctors. Call after 6 p.m. for more information (612) 633-9093. (R)

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Secluded NW Wisconsin Retreat: 40 acres, 550′ frontage on uninhabited 30-acre lake. Beautiful six-sided, two-story, three-bedroom, full basement, custom modern home. Complete privacy, wildlife, and large pines. For more information write or call: Buck McMinn, PO Box 296 Chelan, Washington 98816; (509) 682-5204. 1-12/87

Orthopedic Surgeon, Minneapolis: BC/BE orthopedic surgeon needed to join the Department of Orthopedic Surgery of a 270-physician multispecialty medical clinic in desirable Twin Cities area. Our medical clinic is a highly reputable, well-established clinic that has been in existence for over 36 years. The clinic serves both fee-for-service and prepaid (HMO) patients. Salary and benefits are highly competitive. Send CV and letters of inquiry to: Patrick Moylan, Park Nicollet Medical Center, 5000 West 39th Street, Minneapolis, Minneosta 55416. *1-12/87

OB/GYN board certified or board eligible to join progessive 19-physician multispecialty group practice. Advantages of rural setting with metropolitan practice style, 25 miles from Minneapolis. Group has an excellent reputation and large geographical referral area. Our fully equipped practice facility is adjacent to a 110-bed hospital. Salary and benefit schedule. Send CV to: Bruce Hoggarth, M.D., Lakeview Clinic, Ltd., 424 State Hwy 5 West, Waconia, Minnesota 55387; or call (612) 442-4461. 1-12/87

Wisconsin - Milwaukee: Opportunity exists with 30-Dr. multispecialty group in suburban Milwaukee. **Wisconsin - South Central:** 55-physician multispecialty group seeking third full-time pediatrician. Both opportunities offer an excellent compensation package with incentives. Contact: Jean L. Ecos, 250 Regency Court, Waukesha, Wisconsin 53186; or call 1-800/338-7170. *1-12/87

Locum Tenens Physician: Join a comprehensive physician support service with a major medical center in southcentral Montana. Locum physicians provide primary care coverage (excluding routine OB) for physicians in rural Montana and Wyoming. Assignments vary in length. Reimbursement for expenses, malpractice, health insurnce, CME. Call Locum Tenens Coordinator, 1-800/325-1774, or send CV to 1500 Poly Drive, Suite 103, Billings, Montana 59102. *1-12/87

Gastroenterologist, Minneapolis: BC/BE gastroenterologist needed to join the Section of Gastroenterology of a 270-physician multispecialty medical clinic in desirable Twin Cities area. Our medical clinic is a highly reputable, well-established clinic that has been in existence for over 36 years. The clinic serves both fee-for-service and prepaid (HMO) patients. Salary and benefits are highly competitive. Send CV and letters of inquiry to: Patrick Moylan, Park Nicollet Medical Center, 5000 West 39th Street, Minneapolis, Minnesota 55416. *1-12/87

Family Practice: Unique opportunity in outpatient family medicine. Marshfield Clinic is seeking a board certified/eligible family practitioner to join its expanding center in Mosinee, Wisconsin. The center is currently staffed by three family practitioners and a physician's assistant. Full specialty consultation is readily available. Emphasis on quality lifestyle is combined with excellent compensation and fringe benefits. Send CV and references to: Richard G. Nash, M.D., 607 13th Street, Mosinee, Wisconsin 54455; or call collect to (715) 693-6711. *1-12/87

Family Practice: Marshfield Clinic Department of Family Medicine has an opportunity for a BE/BC Family Practice Specialist to join its six-member group. This position offers a high quality fulfilling practice with both inpatient and outpatient responsibilities. This physician would enjoy the support of one of the nation's largest multispecialty groups. Unique rural setting, excellent salary, plus extensive fringe benefits. Reply with CV to: Steven M. Fontanini, D.O., Chairman, Department of Family Practice, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449; or call collect (715) 387-5168. *1-12/87

Physicians: Practice medicine in a lovely college community in northeastern New York, which offers an ideal family environment coupled with a 410-bed regional facility which considers quality care its first priority. Plattsburgh, a city of 38,000, is located on the shores of 110-mile Lake Champlain, which is bordered by the Adirondack Mountains of New York and the Green Mountains of Vermont. Both Montreal and the Olympic-Lake Placid region are within a one-hour drive. The Medical Center services a tri-county population of over 160,000. Opportunities are available in the following specialties: **Internal Medicine, Family Practice,** Neurology, **Gastroenterology, Cardiology** (Non-Invasive), Medical Oncology, **Vascular Surgery, Emergency Medicine,** Pulmonary Disease. **Excellent "start-up" packages are tailored to each physician's needs.** For more information or for a copy of a video that depicts the community and hospital, write to: Hannah Hanford, Director, Physician Search, Box 1656, Plattsburgh, New York 12901; (518) 643-2998. *1-12/87

BC/BE Internists: The Minneapolis VA Evening Medicine Clinic is currently seeking physicians to work one or more evenings per week, providing longitudinal primary care. Excellent support staff and ancillary services. Congenial atmosphere. Salary competitive. Reply: Karen Margolis, M.D., General Medicine Section (1110), Minneapolis VA Medical Center, Minneapolis, Minnesota 55417; (612) 725-6767, ext. 6931 or (612) 221-3466. *1-12/87

Director, Occupational Health: Opportunity to direct growing occupational health service in large midwestern city. Position offers a variety of challenges in conjunction with joint programs in sports medicine and executive fitness. BE/BC with 1-2 years' experience a plus. Competitive salary, incentives, and a negotiable benefits package. Contact: Jim Davis, TYLER & CO., 9040 Roswell Road, Atlanta, Georgia. Call (404) 641-6411. *2-1/88

Physician: Board certified/board eligible psychiatrist to work as a staff physician at the Veterans Administration Medical Center in St. Cloud, Minnesota. Position offers: a competitive salary, basic 40-hour week with limited on-call responsibility, malpractice coverage, 30 days paid vacation, and other excellent fringe benefits in a JCAH-accredited, progressive 802-bed medical center with 72,000 outpatient visits per year, adequate staffing including physician extenders and research opportunities. The city of St. Cloud (and the surrounding area) boasts of high-quality family living for its residents who enjoy clean air, a wide variety of four-season outdoor recreational opportunities, excellent hunting and fishing in the "Land of 10,000 Lakes" and outstanding educational facilities, including three universities. Located between the Twin Cities of Minneapolis and St. Paul and the northern lake country. Financial assistance to defer cost of relocation. Equal Opportunity Employer. Write or call: LaBelle Ruehle, Personnel Service, Veterans Administration Medical Center, St. Cloud, Minnesota 56301; (612) 252-1670, ext 241. *2-1/88

Pediatrician to join existing two-person practice at the 23-physician multispecialty Winona Clinic, Ltd., in Winona, Minnesota. Located in the beautiful Mississippi River Valley of southeast Minnesota. The community with a 40,000 population trade area is the host of three colleges and a diverse industrial base. Send CV to: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-2/88

Orthopedic Surgeon board certified/board eligible to join a 23-physician multispecialty group in Winona, Minnesota. Total patient population draw area of 40,000. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-2/88

The University of Minnesota School of Dentistry invites applications for part-time, non-regular faculty for consultative diagnostic and treatment planning services in specialty clinics. M.D. required, with training and experince in otolaryngology, cleft palate patient care, and/or physical medicine and rehabilitation with experience in chronic pain. The University of Minnesota is an equal opportunity employer and specifically invites and encourages applications from women and minorities. Send resume (indicating specialty or area(s) of clinical expertise) by 6/30/88 to: Dean Richard P. Elzay, University of Minnesota School of Dentistry, 515 Delaware Street SE, Minneapolis, Minnesota 55455. *3-12/87, *2/88, *5/88

Group Health, Inc. Seeks BC/BE associates in: cardiology (noninvasive), internal medicine, family practice, pediatrics and obstetrics/gynecology. A balanced lifestyle includes the enjoyment of practicing quality medicine in a 30-year-old prepaid, multispecialty setting located in one of the nation's leading metropolitan areas, working in excellent facilities, participating in comprehensive benefits with flexible compensation and teaching opportunities available. Please send CV to: Jerry Hess, Group Health, Inc., 2829 University Avenue SE, Minneapolis, Minnesota 55414. *3-2/88

Family Practitioner: Immediate opening for seventh BC/BE FP to join growing 17-M.D. multispecialty clinic. NO CAPITATION. Two hours from Twin Cities. No practice start-up costs. Located in an area of beautiful lakes and trees, and ideal for raising a family. Call collect or write: Curtis J. Nielsen, (218) 829-0354 or 829-4901, PO Box 524, Brainerd, Minnesota 56401. 4-3/88

Internal Medicine: Immediate opening for sixth BC/BE IM to join growing 17-M.D. multispecialty clinic. NO CAPITATION. Two hours from Twin Cities. No practice start-up costs. Located near beautiful lakes and trees. Ideal for raising a family. Call collect or write: Curtis J. Nielsen, (218) 829-0354 or 829-4901, PO Box 524, Brainerd, Minnesota 56401. 4-3/88

Family Physician to join the medical staff of two family practitioners in a well-established, growing clinic in central Minnesota, along the southern shores of beautiful Mille Lacs Lake. Excellent subspecialty support, progressive salary and fringe benefit program. Call collect, (612) 676-3661, or write c/o Nancy Swenson, Clinic Manager, Mille Lacs Family Health Center, PO Box 53, Isle, Minnesota 56342. 5-4/88

Family Practice Opportunity: Two-doctor clinic to add third family practitioner, summer of 1988. Shared call with 9 family practitioner-affiliated clinic. Close specialty back-up. 288-bed facility. 6,000 population community in northwest Twin Cities suburb. Competitive Twin Cities' area salary and excellent benefits. If interested, contact: Dr. James Walker at (612) 421-3680 (office), or 427-5704 (home) or Mr. Richard Moore at (612) 421-3680. 6-5/88

Family Practice/Internal Medicine Physicians: Ramsey Clinic, a University-affiliated, 215-physician multispecialty group practice in St. Paul, Minnesota, has immediate opportunities for family practice and internal medicine physicians within its growing branch clinic system. Each position offers a unique practice setting located in western Wisconsin in close proximity to St. Paul, Minnesota. We offer multiple teaching opportunities, a very attractive salary and benefit package, and easy access to excellent major city cultural opportunities and outdoor activities. If interested in any of these opportunities, please send your CV to: Milton Cornwall, M.D., Suite 5, Ramsey Clinic, 640 Jackson Street, St. Paul, Minnesota 55101; (612) 221-1877. EOE. *1-12/87

Family Practice Physician, Pediatrician, and OB/GYN - St. Cloud: BE/BC to join supportive primary care staff in successful and innovative staff-model HMO. New clinic facility. Full range of fringe benefits (competitive salary, liberal vacation, two weeks' education leave, retirement fund, etc.) Must be sensitive to women's issues. Dr. Gary Strandemo, Central Minnesota Group Health Plan, 1245 15th Street North, St. Cloud, Minnesota 56301; (612) 253-5220. EOE. 4-1/88

Internist BE/BC to join two young internists in growing practice in Michigan's beautiful Upper Peninsula. New local hospital. Campus for Michigan State University Medical School. Community of 15,000. Send CV or call: Drs. Spender and Kuehnl, 218 South 10th Street, Escanaba, Michigan 49829; (906) 786-1563. (R)

1988 CME Cruise/Conferences on Medicolegal Issues & Risk Management - Caribbean, Mexico, Alaska, China/Orient, Europe, New England/Canada, Trans Panama Canal, South Pacific. Approved for 24-28 CME category 1 credits and AAFP-prescribed credits. Distinguished lecturers. Excellent group rates on finest ships. Registration limited. Pre-scheduled in compliance with IRS requirements. Information: International Conferences, 189 Lodge Avenue, Huntington Station, New York 11746; (516) 549-0869. *3-12/87

Obstetricin/Gynecologist: Marshfield Clinic is seeking a board certified or eligible obstetrician/gynecologist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, educational, and cultural opportunities easily accessible. The clinic is adjacent to a 110-bed JCAH-accredited hospital. Marshfield Clinic is a 250-physician, multispecialty private group practice offering a very competitive salary and fringe benefit package. Send CV and references to: Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449. Or you may call collect at (715) 387-5498. *3-12/87

General Internal Medicine: Marshfield Clinic is seeking a board certified or eligible general internist to join its expanding regional center in Chippewa Falls. Chippewa Falls is a community of 15,000 people located in beautiful west central Wisconsin with a wide range of recreational, eductional, and cultural opportunities easily accessible. The center currently includes three internists. Marshfield Clnic is a 250-physician, multispecialty private group practice offering a very competitive salary and fringe benefit package. Send CV and references to: Bob Peterson, Director, Regional Centers, Marshfield Clinic, 1000 North Oak Avenue, Marshfield, Wisconsin 54449. Or you may call collect at (715) 387-5498. *3-12/87

Internal Medicine: Busy three-physician internal medicine group seeks additional associate. Competitive salary with opportunity for rapid advancement. Located in northwestern Minneapolis suburb. Contact: Dr. Stec, PO Box 29188, Minneapolis, Minnesota 55429; (612) 428-2454. 3-12/87

Family Physician Needed: Immediate need for BC/BE family physician to join two established family physicians in private practice in northwest Iowa community of 5,000. Modern clinic across the street from JCAH hospital. Excellent salary and fringe benefits with partnership opportunity. Locum tenens opportunity available also. Call collect: (712) 324-2511 or contact: Sheldon Family Practice Associates, 206 North 7th Avenue, Sheldon, Iowa 51201. 4-1/88

Luxury House For Rent In Aspen, Colorado, 4BR, 2 1/2 baths; located within minutes of five ski areas; exceptionally furnished; with all amenities, stereo, color TV, hot tub, fireplaces, etc. Contact: Dick Huffman at (612) 374-4662. 4-1/88

Internal Medicine BC/BE for multispecialty clinic of 17 board certified physicians in family practice, internal medicine, pediatrics, orthopedics, general surgery, radiology, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, and pathology. Other specialties in town are ophthalmology, and urology. Historic city of 15,000 located 90 minutes south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balanced economy between Kraft, 3M, Pantasote, AMPI, and agribusinesses. Three excellent school systems in addition to a college. Contact: Robert Stevens at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota (507) 354-4101. 4-1/88

New Ulm, Minnesota: Family Practice Physician BC/BE for multispecialty clinic of 17 board certified physicians for family practice, internal medicine, pediatrics, orthopedics, general surgery, radiology, and emergency medicine. Associate physician regular visits in neurology, oncology, otolaryngology, and pathology. Other specialties in town are ophthalmology and urology. Historic city of 15,000 located 90 miles south of Minneapolis metro area, 30 minutes from Mankato State University. Well-balance economy between Kraft, 3M, Pantasote, AMPI, and agribusinesses. Three excellent school sysems in addition to a college. Contact: Robert Stevens at the New Ulm Medical Clinic, PO Box 667, New Ulm, Minnesota; (507) 354-4101. 4-1/88

Southwestern Minnesota Community of 1,500 is seeking a primary care physician to join another physician in an active family practice (non-HMO) clinic. A 17-bed hospital and 41-bed intermediate care nursing facility are located within the community. Excellent location and potential for personable, aggressive individual in a quiet, rural setting. Preferred BC/BE. Send inquiries to: Timonthy E. Nealy, M.D., Adrian Medical Clinic, Adrian, Minnesota 56110, (507) 483-2845; or Charlotte Heitkamp, Administrator, Arnold Memorial Hospital, Adrian, Minnesota 56110-0279; (507) 483-2668. (R)

Special: London, England, fully furnished apartment for rent, payable USA, long or short lease. Exclusive Chelsea area - Cheyne Court. 3BR, 2 bath with shower, living room with TV, dining room, kitchen, and entry. Easy for Gatwick and Heathrow airports. Across from River Thames, close to Victoria Station, the Houses of Parliament, Harrods, King's Road, on bus routes, near underground, and much more. For more information, please call Mrs. John Matthews at (612) 475-2331. (R)

Family Physician who enjoys obstetrics wanted to join a progressive family-practice-oriented group in Wadena, Minnesota. This is an excellent opportunity for a self-starter who enjoys work, as the clinical practice is busy. Beautiful area, great community for family. For details contact: Dr. Tim Schmitt, (218) 631-1360, or James Lawson, Administrator, Tri-County Hospital, Wadena, Minnesota 56482; (218) 631-3510. (R)

Neurology: Board certified/board eligible neurologist with EEG/EMG evoked potential experience needed to associate with an established practice. Minneapolis-St. Paul area with large teaching hospital privileges. Please send CV to: Minnesota Medicine (815), 2221 University Avenue SE, Minneapolis, Minnesota 55414. 3-11/87

Pediatrician wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Pediatric Department of four physicians in a very busy practice. Please address inquiries to: Bradford McKane, Comprehensive Medical Care, PA, 9055 Springbrook Drive, Coon Rapids, Minnesota 55433 or phone (612) 780-7032. (R)

Family Physician to join group of board certified family practitioners and one board certified general surgeon. Liberal vacation and education allowances. Competitive salary first year with incentive bonus and full membership after one year. Blue Earth is a community of 4,000 in southern Minnesota with a drawing area of 25,000. 43-bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology, and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013, Phone: (507) 526-7371, Personal Phone: (507) 526-3177; Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682. (R)

Wanted: Family Practitioner, Internal Medicine: Central Minnesota. Starting salary $55,000. Write: Minnesota Medicine (813), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Wausau Medical Center seeks BC/BE associates in Anesthesiology, Dermatology, Family Practice, Infectious Disease, Internal Medicine, Obstetrics/Gynecology, Rheumatology, and Walk-In. New facility situated across the street from new hospital. Full partnership in three years. Easy access to lakes, woods, and mountains. Write (include CV) to: D.K. Aughenbaugh, M.D., Medical Director, Wausau Medical Center, 2727 Plaza Drive, Wausau, Wisconsin 54401. 5-12/87

Pathologist BC AP/CP, 12 years' experience. Seeks position as associate pathologist for group, or director of smaller laboratory. Available January 1, 1988. Call (218) 736-4976. 3-1/87

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Family Practice For Sale: Ideal location in outer metropolitan Twin Cities area. Includes X-ray, modern lab, and all ancillary equipment, which is in excellent condition. Reasonably priced. Ideal situation for family physician who wishes to take over existing practice and enjoy immediate patient load and income. Practice easily expandable, if desired, in this rapidly growing area. Write: Minnesota Medicine (816), 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414. (R)

Urologist Physician board certified/board eligible to join 23-physician multispecialty group in Winona, Minnesota. Total draw area of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Kneusel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-1/88

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Twenty-nine Physician Multispecialty Clinic located in desirable east-central Wisconsin location is seeking board certified or board qualified orthopedic surgeon to round out its services. Lab, X-ray, excellent hospital. Liberal quarantee and benefits. If interested, contact: D.F. Sweet, M.D., Fond du Lac Clinic, S.C., 80 Sheboygan Street, Fond du Lac, Wisconsin 54935. (R)

Family Practice: Full-time or part-time physician is needed to assume established practice opportunity in a 7-physician group. We are located 45 minutes from the Twin Cities area. Competitive salary and benefits. Contact: D.L. Wagoner, M.D., 525 18th Street East, Glencoe, Minnesota 55336 or call (612) 864-3116. 3-1/88

Internal Medicine: Board certified or eligible to join 12-physician, expanding, multispecialty practice in northern Wisconsin. Clinic adjoins JCAH hospital. Rural location with abundant outdoor recreational opportunities, small four-year college. Excellent salary and benefits. Call collect: (715) 532-6651 or send CV with names of references to: John C. Smylie, Administrator, Marshfield Clinic - Ladysmith Center, 906 College Avenue West, Ladysmith, Wisconsin 54848. *3-1/88

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OB/GYN-Minneapolis to join a growing three-member private practice. Excellent referral base from FPs. Practice located at Riverside Medical Center (Fairview & St. Mary's) with downtown and north Minneapolis offices. Contact: Joseph Hamel, M.D., 2414 South 7th Street, #805, Minneapolis, Minnesota; (612) 337-8835. 2-12/87

OB/GYN, board certified or eligible, to join highly progressive, rapidly growing practice. Normal and high-risk obstetrics emphasized along with highest levels of infertility care (microsurgery, GIFT, IVF, laparoscopic laser surgery), as well as extensive gynecology and surgery practice. Easy lake country or Milwaukee suburban living. Salary and guarantees to meet your needs with opportunity for partnership in one year. Available July 1988, or earlier. Contact: Matt Meyer, M.D., Women's Health Care, S.C./Milwaukee Regional Fertility Center, 426 West Main Street, Waukesha, Wisconsin 53186; (414) 549-1333. 4-2/88

Internal Medicine Physician, board certified/board eligible to join 23-physician multispecialty group in Winona, Minnesota, with existing 9-physician Internal Medicine Department. Total draw of 40,000 population. Competitive salary offered. Interested physicians please contact: J.B. Knuesel, Administrator, Winona Clinic, Ltd., 420 East Sarnia, Winona, Minnesota 55987. 3-1/88

Pediatrician wanted to join a 40-physician multispecialty group in northern suburbs of Minneapolis. The appropriate candidate will join the current Pediatric Department of four physicians in a very busy practice. Please address inquiries to: Ronald J. Jankowski, M.D., Ramsey Medical Center, 5300 153rd Avenue, Ramsey, Minnesota 55303, or phone (612) 427-7180. 3-1/88

Family Physician: We are seeking a BC/BE family physician to join our six family practitioners and one surgeon in long-established central Minnesota clinic. Accredited hospital with recent addition. Excellent income plus incentive potential and benefits including future partnership. Contact: Tim B. Schmitt, M.D., or Julie Geiser, Clinic Administrator, Wadena Medical Center, Ltd., 4 NW Deerwood Avenue, Wadena, Minnesota 56482; (218) 631-1360. 2-12/87

General Internist to join six-man internal medicine clinic in Duluth, Minnesota. Subspecialty interest encouraged. Competitive first-year salary and benefits. Contact: David R. Albright, M.D., or Randall L. Johnson, M.D., 220 Medical Arts Building, Duluth, Minnesota 55802; telephone (218) 727-8585. 3-1/88

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Family Practice: We are in need of two family practice physicians, preferred board certified, to cover expanding service area. Sandstone Area Hospital/Nursing Home is a 30 bed acute and 86 bed long-term care facility with a clinic located next to the facility staffed by two full-time physicians. Sandstone is located in Northeast Minnesota's heartland, providing rich recreational activities. For more information, call/write: James G. Blum, Administrator, Sandstone Area Hospital, 317 Court, Sandstone, Minneseota 55072; (612) 245-2212. *(R)

General Surgeon and Family Physician needed for busy five-physician practice. Guaranteed first-year salary with excellent benefits program. Located only 22 miles from Duluth on the beautiful North Shore of Lake Superior. Call collect: (218) 834-2171, or write Steve Bjorum, Executive Director, Community Health Center, 4th Street at 11th Avenue, Two Harbors, Minnesota 55616. (R)

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Family Physician: Twin City convenience care center seeking full-time or part-time family physician to provide care for minor emergencies and illness. Competitive salary. Send CV to: Richard M. Gebhart, M.D., Grove Square Convenience Care, 13800 83rd Way, Maple Grove, Minnesota 55369; or call (612) 420-5822 days or (612) 420-5279 evenings. 3-12/87

Internal Medicine: BE/BC. The Alexandria Clinic, PA is seeking to add another internal medicine physician to our multispecialty clinic. The clinic currently has 10 family practice, 1 OB/GYN, 1 pediatrician, 1 surgeon and 2 internal medicine physicians. This position offers enough free time to enjoy the many lakes, excellent fishing and hunting as well as the winter sports in our area. Please contact: Tim Wieben, Administrator, Alexandria Clinic PA, 610 Fillmore Street, Alexandria, Minnesota 56308; (612) 763-5123 or home, (612) 763-6702, for further informaton. 3-12/87

Family Physician/Emergency Room: Full-time salary working weekends, primarily emergency room. Flexibility available. Falls Medical Center, PA, 105 Shorewood Drive, International Falls, Minnesota 56649. Please contact: A. Johnson, M.D., or A. Marc Gorden, M.D., at (218) 283-9431 for more information. (R)

Family Practitioner, General Internist, and General Surgeon to join 8-physician clinic in Cloquet, Minnesota, a community of 14,000 (30,000 service area), located 20 minutes from Duluth-Superior. The clinic facility is located one block from modern, well-equipped hospital. Cloquet enjoys a stable economy (forest products). Additionally, our community is noted for its excellent school system. First-year salary guarantee, paid malpractice, health and disability insurance; vacation, and study time. Contact: John Turonie, Administrator, Raiter Clinic, Ltd., 417 Skyline Boulevard, Cloquet, Minnesota 55720; (218) 879-1271. (R)

Family Physician needed to replace retiring partner in thriving 3-FP full-service practice in Starbuck, Minnesota, on the state's thirteenth largest lake. Good hunting and fishing. Modern nine-year old hospital. Twenty miles to University Campus. Call or write: Robert Bosl, M.D., Starbuck Clinic PA, Starbuck, Minnesota 56381; (612) 239-2231. (R)

Psychiatrist: Position available for an adult psychiatrist with interest in adolescents, board eligible or certified to join board certified psychiatrist in a very active, private practice including both inpatient and outpatient services. The Community Hospital has a 12-bed mental health unit and is fully accredited (JCAH) and certified (HCFA). Salary plus benefits first year with professional association thereafter. In Hutchinson, Minnesota, population 10,000; 65 miles west of Twin Cities; with cultural opportunities; good economy with growing industry in 3M Company and Hutchinson Technology Inc., along with excellent school systems including a vocational technical institute. Please send resume to: Dr. John O. Fluegel, M.D., Hutchinson Mental Health Associates, 1091 Highway 15 South, Hutchinson, Minnesota 55350; (612) 587-9652. 3-12/87

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Bemidji, Minnesota: Immediate opportunity for an additional Board Certified/Eligible orthopedic surgeon to join young 26-physician multispecialty group practice located in Northern Minnesota. Clinic adjacent to modern, well-staffed and equipped hospital. Competitive salary guarantee plus incentive first year. Excellent benefits and educational leave. An excellent opportunity for a physician to enjoy the practice of orthopedics in the center of hunting, fishing, and clean air. Please respond with CV to: Thomas E. Miller, M.D., or C.C. Lowery, Administrator, Bemidji Clinic, Ltd., 1233 34th Street NW, Bemidji, Minnesota 56601. (R)

Arizona-Based Physician Recruitment firm has quality opportunities coast-to-coast. Available positions in most primary care and surgical specialties to include Ob/Gyn, Orthopedics, ER, and ENT. "Quality Physicians for Quality Clients since 1972." Call (602) 990-8080; or send CV to: Mitchell & Associates, Inc., PO Box 1804, Scottsdale, Arizona 85252. *(R)

General Internist: 14-member primary care group with 10 family physicians and one internist, surgeon, pediatrician and Ob/Gyn, requires a Board Certified general internist to continue to develop a primary and consultative internal medicine practice in Marshall, Minnesota, affiliated with Willmar Medical Center. USUAL CHAMBER OF COMMERCE CLAIMS *NEARLY* TRUE HERE! Contact: C. Paul Martin, M.D., Doctors' Plaza, Marshall, Minnesota 56258; (507) 532-9631 or send CV and references to John Merickel, M.D., Affiliated Medical Center, 101 Willmar Avenue, Willmar, Minnesota 56201. 9-12/87

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Bemidji Clinic, Ltd. offers excellent opportunities for well-trained physicians. We are seeking board certified or board eligible physicians in family practice, general internal medicine or with subspecialty training in ear/nose/throat, orthopedic surgery and obstetrics/gynecology. Bemidji Clinic is a 25-physician multispecialty group practice located in the beautiful north country of Minnesota. Generous first-year salary and benefit program. Contact: C.C. Lowery, Clinic Administrator, or H.J. Hoody, M.D., Medical Director; (218) 751-1280. (R)

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FP/GP Locum Available for Work Lic. Minnesota, Wisconsin, SD, ND, Colorado, Utah, Missouri. Contact: Dr. Olin, 10 Riverside Drive, Duluth, Minnesota 55808; (612) 475-9411. (R)

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